National Rail Passenger Survey

Technical Report

Spring 2020 (Wave 42)

transportfocus

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1. Background

Transport Focus (known as Passenger Focus until April 2015), and previously OPRAF and the Strategic Rail Authority set up the National Rail Passenger Survey in 1999. The aim of the NRPS is to provide passenger views on rail company performance on a consistent basis, so that comparisons can be made between the various companies. Over time, data from the NRPS has been built into the franchising contracts with train companies, making the results an important commercial dimension of running a Train Operating Company (TOC). Given this, the integrity of the sample design, fieldwork standards and accuracy of assigning journeys to specific TOCs are of the greatest importance. In addition, robust enough sample sizes are required for each TOC to ensure that performance changes can be seen in the marketplace.

The first NRPS was run in Autumn 1999 and since then it has run twice a year. The first seven waves were undertaken by The Oxford Research Agency, until the contract was offered at competitive tender in Autumn 2002. In December 2002, Continental Research (later merged to become BDRC Continental) was appointed to run the survey. Between 2002 and 2016 the survey was competitively tendered every three to five years and in 2016 the contract was awarded to Chime Insight & Engagement (CIE) now rebranded to Watermelon Research. Wave 42 is the seventh wave undertaken by Watermelon Research.

Following a successful pilot undertaken in Spring 2016 (by BDRC) two key changes were made to the survey methodology for Spring 2017 onwards. The first is the introduction of an online survey option. This now gives passengers a choice between completing a paper version of the questionnaire or being sent a link to an online version of the questionnaire. The second change was a reduction in the length of the questionnaire from 12 A4 pages to eight. This inevitably meant that some questions that have previously been included in the survey have had to be excluded. In some cases, changes were also made to the wording of questions, the full details of which can be found later in this report. In order to limit the length of the questionnaire, separate modules of the questionnaire were developed that are rotated across samples and across waves. In Spring 2017 the questionnaire was modularised introducing rotating sections for Station Access and Accessibility which have been rotating each wave. In Autumn 2019 the Onboard Activities modules featured in the questionnaire.

Specifically for ScotRail, the decision was taken to run the previous NRPS methodology in parallel to the newer format, main NRPS survey. Where possible, the main interviewing shifts are matched in terms of station, day of week and time and run either a week before the corresponding main NRPS interviewing shift, or a week or two after. This has allowed us to gain a robust understanding of the differences between the new and previous methodology, the findings from which are referenced later in this report. The ScotRail parallel run was up to the Spring 2020 wave.

This document outlines the methodology and technical details for Spring 2020, Wave 42 in the overall series. The aim of this document is to provide information on all key aspects of methodology, including all area definitions used to generate analyses. All analysis included is based on weighted data. The document follows the Quality Assurance Process agreed for NRPS between the agency, Transport Focus and the Office for Statistics Regulation

2. Caveats regarding this wave

Fieldwork on the Spring 2020 NRPS wave was suddenly curtailed in early March due to the onset of Coronavirus. This meant that target sample sizes were not achieved and there was no real opportunity (as is normally the case) to use the last 2-3 weeks of fieldwork to target specific sample cells that were most adrift of target.

The lower sample size naturally leads to wider margins of error. The lack of targeting has led to lower weighting efficiencies for most TOCs reducing effective sample sizes and further widening margins of error. A small number of sample cells had to be merged due to low sample sizes. Apart from widening margins of error, the loss of fieldwork does not appear to have led to any unusual results for the key metrics at national level or for most TOCs. The widening of margins of error has been taken into account in identifying any significant shifts in reported metrics.

However, Merseyrail clearly stands out from other TOCs, with six metrics that show spikes in Spring 2020 (which are not continuations of previous trends) and the TOC featuring on four of the six criteria used to judge whether there are any specific issues with the Spring 2020 NRPS wave. There may be good reasons for the changed perceptions if the TOC has undertaken specific related actions but if this is not the case, we would suggest considerable caution is used when interpreting the results for Merseyrail.

A number of TOCs have low rankings on more than one of the criteria used to judge whether there are any specific issues with the Spring 2020 NRPS Wave. These TOCs are Great Northern, East Midlands Railway, London North Eastern Railway, c2c, Chiltern Railways, Transport for Wales and TransPennine Express. With these TOCs, we would suggest greater than usual care is taken when interpreting the results of the Spring 2020 wave.

For the other TOCs, we see no great evidence that the curtailment of fieldwork has had any major impact on the results and we suggest that the metrics for these TOCs meet the normal NRPS standards, with the caveat that reduced sample sizes and weighting efficiencies will widen the margins of error. These widened margins of error will be in any event used to calculate whether there have been significant changes and we recommend that the NRPS User Guide is updated to reflect these wider margins for this wave.

Further details are available from a full Quality Assurance Report, which is available on the Transport Focus website or by emailing David Greeno.

3. Questionnaire

3.1 Questionnaire Changes

A pilot was undertaken during Spring 2016 fieldwork to assess the impact of proposed changes to the questionnaire for future waves. In summary, the changes were:

- Introduction of the option for respondents to complete the survey online should they wish to
- Reduction in the questionnaire length from 12 pages to eight
- Questionnaire printed in colour, with an image on the front page

Following the pilot, the decision was taken to offer an online response option, reduce the length of the questionnaire and print in colour. In terms of the questionnaire coverage, the table below details those changes, their impact and conclusion on whether they are comparable with previous data or not.

Wording change	Impact	Conclusion
'Sufficient room for all passengers to sit/stand' replaced by 'Level of crowding'	Both attributes are rated very similarly by passengers in the Spring '16 pilot and the ScotRail parallel survey. However, there has been a 7% uplift in the results at a national level and changes at TOC level between 10-19%.	Results are not comparable
'Ease of getting on and off' replaced with 'Step or gap between the train the platform'	At a national level, the wording changes have resulted in a -19% difference.	Results are not comparable
'Comfort of the seating area' replaced with 'Comfort of seats'	The change has resulted in a lower score at a national level (-6%). The same pattern was observed in the Spring '16 pilot and the ScotRail parallel.	Results are not comparable
'Provision of shelter facilities' replaced with 'Shelter facilities'	Whilst a small (+4%) increase was observed, we don't believe this is due to such a minor wording change.	Results are comparable
'The facilities and services at the station (e.g. toilets, shops, cafes etc) replaced with 'Toilet facilities at the station'	Given the extent of the differences in meaning between these two statements we don't believe we can compare results.	Results are not comparable
'Your personal security whilst on board the train'. A new statement 'the step or gap between the train and the platform' was added and appeared just before 'your personal security whilst on board the train'	Analysis of both Spring 2017 and Autumn 2017 results for this question suggest the position of the new statement has impacted on responses to the personal security question.	Results are no longer comparable

Aside from a few exceptions noted in the above table, changes observed between Autumn 2016 and Autumn 2017 are real, rather than a result of methodological changes. It is recommended that a comparison is not made between Autumn and Spring as seasonal differences can impact upon the results. Typically, Spring scores are lower, due to poorer weather conditions, shorter days, and the possible impact of recent fare increases.

In Autumn 2019 some minor amendments were made to the questionnaire providing further refinements to the data collected:

- A section for on board activities was re-introduced for one wave. Questions include how passengers spent their time on the train and whether they had planned this in advance. There were also a handful questions about catering availability on the train.
- A new answer option of '16-17 Railcard' was added to capture those who reduce their fare through having this railcard.

The questionnaires used in Wave 42 were formally signed off by Transport Focus and are shown at Appendix B.

3.2 Online survey option

As an alternative to the paper version of the questionnaire, passengers were offered the opportunity to complete the survey online. The online survey option was introduced to the NRPS in Spring 17, originally introduced as a back-up option to pen and paper and then more widely rolled out as an equal alternative to pen and paper during that wave and then throughout the Autumn 17 survey.

Those wishing to take part via this route were asked for their e-mail address and an invite and survey url was sent to them soon after. Depending on connectivity and the availability of Wi-Fi in some cases the invite would have been sent immediately, in other cases a little later, once the interviewer had the opportunity to synchronise his or her tablet.

Due to the nature of the roll-out of the online option, the proportion of passengers electing to complete the survey has increased consecutively wave-on-wave. However, it stabilised between Spring 18 and Autumn 18 at around 34%, but in Spring and Autumn 2019 it increased to about 40%: The table below outlines the proportions of those completing the survey online across the TOCs

Table 1: Proportion of online responses for each TOC

	Proportion Online – Autumn 17	Proportion Online – Spring 18	Proportion Online – Autumn 18	Proportion Online – Spring 19	Proportion Online – Autumn 19	Proportion Online – Spring 20
Avanti West Coast	40%	50%	40%	55%	38%	38%
c2c	24%	34%	34%	37%	36%	40%
Chiltern Railways	15%	37%	39%	43%	41%	52%
CrossCountry	26%	30%	30%	29%	30%	35%
East Midlands Railway	27%	42%	39%	47%	45%	51%
Gatwick Express	3%	18%	20%	41%	43%	54%
Grand Central	7%	14%	23%	16%	28%	24%
Great Northern	36%	45%	42%	53%	41%	46%
Great Western Railway	28%	33%	41%	42%	40%	43%
Greater Anglia	15%	30%	41%	30%	35%	45%
Heathrow Express	13%	27%	23%	29%	37%	41%
Hull Trains	26%	28%	28%	34%	27%	37%
London North Eastern Railway	28%	42%	44%	45%	45%	49%
London Overground	18%	37%	34%	45%	42%	51%
Merseyrail	48%	44%	38%	45%	41%	46%
Northern	32%	32%	33%	41%	50%	45%
ScotRail	35%	54%	48%	45%	49%	58%
South Western Railway	15%	32%	29%	42%	33%	46%
Southeastern	18%	29%	28%	35%	39%	44%
Southern	13%	21%	28%	40%	34%	39%
TfL Rail	n/a	n/a	41%	45%	50%	58%
Thameslink	23%	35%	39%	43%	38%	51%
TransPennine Express	32%	39%	38%	49%	44%	43%
Transport for Wales	8%	16%	20%	34%	30%	29%
West Midlands Trains	25%	29%	30%	29%	23%	28%

Data: Unweighted. Main data based on valid returns only.

3.2.1 Profile by TOC

One of the key considerations of the introduction of the online survey has been any potential impact on the demographic profile of the data. Watermelon have undertaken detailed analysis upon the completion of each wave to fully explore the profiles of both the online and pen and paper methodologies. The increase in the proportion of online responses has not had any real impact upon the profile of passengers.

Table 2: Age breakdown by TOC across the NRPS waves

*waves featuring online data

	Spring 16	Autumn 16	Spring 17*	Autumn 17*	Spring 18*	Autumn 18*	Spring 19*	Autumn 19*	Spring 20*
TOC:	**Avanti West Coast (formerly Virgin Trains)**								
16-34	**18%**	**18%**	**18%**	**19%**	**20%**	**18%**	**18%**	**18%**	**20%**
35-54	**42%**	**43%**	**41%**	**40%**	**42%**	**40%**	**43%**	**39%**	**42%**
55+	**40%**	**40%**	**41%**	**41%**	**38%**	**42%**	**39%**	**43%**	**38%**
TOC:	**c2c**								
16-34	**22%**	**24%**	**21%**	**27%**	**27%**	**23%**	**25%**	**21%**	**26%**
35-54	**49%**	**44%**	**43%**	**40%**	**39%**	**41%**	**39%**	**40%**	**39%**
55+	**29%**	**32%**	**36%**	**33%**	**34%**	**36%**	**37%**	**38%**	**35%**
TOC:	**Chiltern Railways**								
16-34	**19%**	**17%**	**18%**	**21%**	**21%**	**18%**	**19%**	**20%**	**17%**
35-54	**42%**	**42%**	**42%**	**38%**	**39%**	**40%**	**38%**	**37%**	**36%**
55+	**39%**	**41%**	**40%**	**41%**	**40%**	**42%**	**43%**	**43%**	**46%**
TOC:	**CrossCountry**								
16-34	**27%**	**25%**	**26%**	**25%**	**26%**	**23%**	**22%**	**23%**	**21%**
35-54	**34%**	**37%**	**34%**	**32%**	**32%**	**34%**	**31%**	**34%**	**34%**
55+	**39%**	**39%**	**41%**	**43%**	**42%**	**43%**	**47%**	**42%**	**45%**
TOC:	**East Midlands Railway**								
16-34	**25%**	**26%**	**25%**	**28%**	**27%**	**29%**	**26%**	**24%**	**29%**
35-54	**41%**	**40%**	**39%**	**39%**	**41%**	**38%**	**38%**	**38%**	**38%**
55+	**34%**	**34%**	**36%**	**33%**	**32%**	**33%**	**36%**	**37%**	**32%**
TOC:	**Gatwick Express**								
16-34	**20%**	**18%**	**24%**	**22%**	**17%**	**15%**	**23%**	**18%**	**17%**
35-54	**46%**	**45%**	**42%**	**47%**	**50%**	**46%**	**44%**	**45%**	**46%**
55+	**34%**	**38%**	**34%**	**31%**	**33%**	**39%**	**34%**	**37%**	**37%**
TOC:	**Grand Central**								
16-34	**33%**	**29%**	**22%**	**23%**	**26%**	**23%**	**28%**	**23%**	**23%**
35-54	**38%**	**40%**	**35%**	**41%**	**33%**	**36%**	**36%**	**32%**	**38%**
55+	**30%**	**31%**	**43%**	**36%**	**41%**	**41%**	**36%**	**45%**	**39%**
TOC:	**Great Northern**								
16-34	**25%**	**24%**	**21%**	**26%**	**24%**	**27%**	**23%**	**21%**	**25%**
35-54	**42%**	**43%**	**40%**	**40%**	**41%**	**39%**	**35%**	**41%**	**33%**
55+	**33%**	**32%**	**38%**	**34%**	**35%**	**34%**	**42%**	**37%**	**42%**
TOC:	**Great Western Railway**								
16-34	**23%**	**23%**	**24%**	**25%**	**24%**	**24%**	**23%**	**24%**	**23%**
35-54	**39%**	**39%**	**37%**	**35%**	**39%**	**35%**	**36%**	**34%**	**34%**
55+	**38%**	**38%**	**39%**	**40%**	**37%**	**41%**	**41%**	**43%**	**43%**
TOC:	**Greater Anglia**								
16-34	**21%**	**23%**	**21%**	**19%**	**23%**	**24%**	**20%**	**18%**	**20%**
35-54	**41%**	**41%**	**39%**	**39%**	**41%**	**41%**	**38%**	**39%**	**39%**
55+	**38%**	**36%**	**40%**	**42%**	**35%**	**35%**	**41%**	**42%**	**41%**
TOC:	**Heathrow Express**								
16-34	**27%**	**24%**	**27%**	**21%**	**26%**	**24%**	**25%**	**20%**	**22%**
35-54	**53%**	**56%**	**54%**	**45%**	**54%**	**53%**	**50%**	**48%**	**55%**
55+	**19%**	**20%**	**19%**	**34%**	**20%**	**22%**	**24%**	**32%**	**24%**

	Spring 16	Autumn 16	Spring 17*	Autumn 17*	Spring 18*	Autumn 18*	Spring 19*	Autumn 19*	Spring 20*
TOC:	**Hull Trains**								
16-34	**24%**	**25%**	**18%**	**16%**	**22%**	**19%**	**20%**	**22%**	**23%**
35-54	**45%**	**38%**	**36%**	**33%**	**36%**	**42%**	**37%**	**35%**	**36%**
55+	**31%**	**36%**	**47%**	**51%**	**42%**	**40%**	**43%**	**43%**	**42%**
TOC:	**London North Eastern Railway (formerly VTEC)**								
16-34	**15%**	**13%**	**15%**	**14%**	**19%**	**17%**	**18%**	**15%**	**14%**
35-54	**39%**	**39%**	**40%**	**37%**	**40%**	**36%**	**38%**	**38%**	**36%**
55+	**46%**	**48%**	**45%**	**49%**	**41%**	**47%**	**44%**	**47%**	**50%**
TOC:	**London Overground**								
16-34	**32%**	**31%**	**27%**	**33%**	**33%**	**26%**	**30%**	**29%**	**31%**
35-54	**42%**	**41%**	**41%**	**38%**	**38%**	**43%**	**37%**	**38%**	**38%**
55+	**27%**	**29%**	**32%**	**30%**	**29%**	**32%**	**33%**	**34%**	**31%**
TOC:	**Merseyrail**								
16-34	**16%**	**12%**	**17%**	**20%**	**19%**	**21%**	**18%**	**19%**	**17%**
35-54	**31%**	**29%**	**26%**	**29%**	**32%**	**30%**	**31%**	**29%**	**37%**
55+	**53%**	**59%**	**57%**	**51%**	**49%**	**49%**	**51%**	**52%**	**46%**
TOC:	**Northern Rail**								
16-34	**32%**	**34%**	**27%**	**30%**	**32%**	**29%**	**28%**	**25%**	**28%**
35-54	**35%**	**32%**	**34%**	**32%**	**33%**	**32%**	**34%**	**33%**	**33%**
55+	**33%**	**35%**	**39%**	**38%**	**35%**	**39%**	**38%**	**42%**	**39%**
TOC:	**ScotRail**								
16-34	**22%**	**25%**	**22%**	**31%**	**31%**	**30%**	**23%**	**25%**	**25%**
35-54	**39%**	**39%**	**37%**	**34%**	**38%**	**35%**	**40%**	**33%**	**36%**
55+	**39%**	**36%**	**40%**	**35%**	**31%**	**35%**	**37%**	**41%**	**39%**
TOC:	**South Western Railway**								
16-34	**23%**	**19%**	**23%**	**22%**	**23%**	**24%**	**24%**	**20%**	**21%**
35-54	**35%**	**38%**	**36%**	**38%**	**38%**	**35%**	**37%**	**35%**	**36%**
55+	**41%**	**43%**	**41%**	**40%**	**39%**	**41%**	**39%**	**45%**	**43%**
TOC:	**Southeastern**								
16-34	**18%**	**19%**	**19%**	**18%**	**23%**	**20%**	**18%**	**19%**	**20%**
35-54	**43%**	**42%**	**41%**	**43%**	**41%**	**38%**	**35%**	**37%**	**40%**
55+	**39%**	**39%**	**40%**	**39%**	**36%**	**42%**	**46%**	**44%**	**40%**
TOC:	**Southern**								
16-34	**19%**	**20%**	**21%**	**22%**	**23%**	**21%**	**22%**	**18%**	**18%**
35-54	**42%**	**39%**	**40%**	**40%**	**39%**	**35%**	**37%**	**35%**	**39%**
55+	**40%**	**41%**	**38%**	**38%**	**38%**	**45%**	**41%**	**47%**	**43%**
TOC:	**Tfl Rail**								
16-34						**32%**	**32%**	**29%**	**32%**
35-54						**42%**	**37%**	**36%**	**38%**
55+						**27%**	**32%**	**35%**	**30%**
TOC:	**Thameslink**								
16-34	**22%**	**22%**	**21%**	**21%**	**22%**	**24%**	**25%**	**22%**	**22%**
35-54	**46%**	**43%**	**43%**	**42%**	**42%**	**43%**	**40%**	**41%**	**45%**
55+	**32%**	**35%**	**35%**	**37%**	**35%**	**33%**	**35%**	**38%**	**33%**

	Spring 16	Autumn 16	Spring 17*	Autumn 17*	Spring 18*	Autumn 18*	Spring 19*	Autumn 19*	Spring 20*
TOC:	**TransPennine Express**								
16-34	**27%**	**25%**	**29%**	**26%**	**29%**	**30%**	**25%**	**26%**	**29%**
35-54	**36%**	**34%**	**33%**	**33%**	**33%**	**36%**	**37%**	**34%**	**33%**
55+	**37%**	**41%**	**38%**	**42%**	**38%**	**34%**	**38%**	**39%**	**38%**
TOC:	**Transport for Wales**								
16-34	**40%**	**34%**	**34%**	**32%**	**35%**	**28%**	**33%**	**34%**	**33%**
35-54	**29%**	**31%**	**32%**	**30%**	**31%**	**32%**	**29%**	**29%**	**29%**
55+	**31%**	**35%**	**34%**	**38%**	**34%**	**40%**	**38%**	**37%**	**37%**
TOC:	**West Midlands Trains**								
16-34	**26%**	**30%**	**25%**	**28%**	**24%**	**26%**	**22%**	**23%**	**22%**
35-54	**37%**	**35%**	**36%**	**30%**	**37%**	**35%**	**32%**	**35%**	**34%**
55+	**37%**	**36%**	**39%**	**42%**	**39%**	**39%**	**46%**	**43%**	**44%**

Data: Unweighted. TfL boundaries changed significantly in Autumn 2018, therefore no comparison with waves prior to Autumn 2018.

As highlighted the inclusion of the online response option is not encouraging a greater number of responses from younger age groups, rather they are more likely to take the online option. This is illustrated well by looking at the table below:

Table 3: Proportion of online by Age (%)

	16-34	35-54	55+
Autumn 2017	32%	20%	11%
Spring 2018	45%	33%	18%
Autumn 2018	47%	34%	20%
Spring 2019	52%	40%	23%
Autumn 2019	50%	36%	20%
Spring 2020	57%	44%	27%

Amongst the **16-34** age group, the % completing the survey via online has risen from **32%** in Autumn 17 to **57%** in Spring 20. The corresponding figure for the 35-54 and 55+ age groups are **20%** to **44%** and **11%** to **27%** respectively.

The impact of the increase in online responses on the age profile of the sample has been minimal at both the overall and individual TOC level. The introduction of the option to complete the survey online is leading to a switch of mode of response, rather than encouraging a greater response rate from the younger age groups.

3.2.2 Journey purpose by TOC

Looking at the **unweighted** profile of the sample by journey purpose, for the majority of TOCs the profile for Spring 2020 closely reflects that for Autumn 2019. Those TOCs where there is a slight divergence will be corrected at the weighting stage of the process as the data is weighted by journey purpose and, following this process, the profile of journey purpose will be consistent wave on wave.

4. Sample design

4.1 Sampling overview

The NRPS uses a two stage cluster sample design for each Train Operating Company (TOC). The first stage sampling unit is a train station, and questionnaires are distributed to passengers departing from that station on a particular day during a specified time period.

Stations are selected for each TOC building block using a PPS (probability proportionate to size) basis, using the estimated number of passengers departing from that station annually as the size measure. As such, larger stations may be selected several times and smaller stations will be selected fewer times and many not at all. Days of the week and times of day are then assigned to each selected station, based upon agreed profiles for different types of station and upon day of week and journey purpose (commuter, business leisure) profile information provided by the TOCs for journeys taking place on their networks. Sampling points are then assigned to weeks at random during the survey period.

A completely new sampling plan is generated every two years, utilising data on passenger volumes provided by ORR and on journey profiles as supplied by the TOCs. This process was undertaken in advance of the Autumn 2016 wave and was re-run for the Autumn 2018 wave, using:

- ORR data on station entries and interchanges;
- LENNON data on the number of journeys allocated to each TOC;
- RailPlanner data on the number of services run by each TOC from each station.

These datasets are amalgamated to generate estimates of the number of passengers each TOC carries from each station it calls at, and this is used as the basis for the sample design. A description of how these three sources of information are used to generate estimates for passenger volumes by TOC at each station is given in Appendix G.

The same sampling plan used in Autumn 2018 (with tweaks) was also employed in subsequent waves including Spring 2020. As such, there are no specific Quality Assurance Checks required on the initial sampling plan (these will only be required when the sampling plan is updated from first principles).

4.2 Detailed sampling plan

The key principles of the sample design are as follows:

- The railway network is divided into building blocks for each of the current Train Operating Companies. The original rationale for this approach was to enable existing, planned and also previous franchises to be measured by combining data from relevant building blocks. Increasingly, it also allows TOCs to align NRPS results to business units monitored for other, mainly operational and financial metrics. This allows TOCs to compare, for example, actual punctuality measured by PPM with perceived punctuality measured by passengers, for each of these individual business units;
- There are now 75 building blocks which are the principal sampling units for the survey, reflecting the key routes on each of the franchise networks, and for non-franchised TOCs, in Autumn 18;

- Up to and including Spring 2016, some of the building blocks had been station based and some had been route based. This changed in Autumn 2016 onwards, when all building blocks were changed to route based (one TOC changed back to station based in Autumn 2018 because of difficulties in assigning weightings to the route definitions). For the (largely) previously used station based blocks, the number of passenger journeys for each station originally calculated for the TOC was assigned to that station in its building block. For route based building blocks, some stations may appear in more than one building block. In these situations, passenger volumes are split between building blocks;
- The passenger number estimates for each TOC building block are signed off by the TOC and where additional evidence exists, changes may be made
- Stations are then selected with probability proportional to this derived passenger volume figure for each building block. This means that the larger stations will be selected several times and very small stations will have a lower probability of selection. When the sampling plan is updated, the small stations selected may therefore vary significantly from the previous plan, whereas the sample of larger stations will tend to be quite consistent;

4.3 Assigning days of week, times of day, and fieldwork dates to selected stations

4.3.1 Days of week and times of day

In the early waves of BDRC's management of the NRPS, days and times were assigned to all shifts as follows:

1. A day of week was assigned at random to each shift, in proportion to day of week profiles as provided by the TOCs
2. Times of day were assigned based on the following profiles, which are set separately for city centre and other stations, and for weekdays versus weekends (all shifts are three hours in length):

Table 4: Time of day profile of passenger journeys (derived from Wave 9 NRPS data)

city centres	%	%	%
Time band	Weekday	Weekend	Total
06:00 – 10:00	8.02	0.33	8.35
10:01 – 13:00	19.48	15.88	35.36
13:01 – 16:00	22.01	5.91	27.91
16:01 – 19:00	25.32	0.37	25.69
19:01 – 22:00	2.52	0.16	2.68
Total	77.35	22.65	100.00
Other stations			
Time band	Weekday	Weekend	Total
06:00 – 10:00	48.73	0.51	49.24
10:01 – 13:00	27.93	10.78	38.70
13:01 – 16:00	5.98	0.79	6.77
16:01 – 19:00	4.99	0.04	5.03
19:01 – 22:00	0.26	0.00	0.26
Total	87.88	12.12	100.00

An on-going principle of the NRPS is that systems and processes have continually but gradually evolved over time, in order to improve its representativeness as well as its operational efficiency, without disrupting continuity of survey results.

One example of this followed the Roberts-Miller Review of NRPS undertaken in 2005/6, which recommended that the time of day profiles were amended to equalise the number of outward and return journeys. Ever since NRPS started in 1999, a pattern of over representation of outward trips had been observed and initially the profile was around two thirds of reported journeys being outward journeys.

In Wave 9 (Autumn 2003), a number of shifts starting at 7pm were introduced, as previously all shifts had been completed by that time. As shown in the table below, this made an impact into rebalancing outward and return journeys, reducing the former by around 4% and boosting return journeys.

Table 5: Outward and return journey proportions

	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16
Outward	67	66	68	64	63	63	62	64	64	64	64
Return	28	28	29	33	34	34	34	32	33	33	33
One way trip only	4	5	2	3	3	3	3	3	3	3	3
Don't know	1	1	1	1	1	1	1	1	0	0	1

The consultant's recommendation was to move more shifts from morning to evening peak to improve this rebalancing.

This change was incorporated into the allocation of shifts to time of day for Wave 17 (Autumn 2007), with approximately 100 shifts moved from the original morning peak time generated by the above procedure to an evening peak time. The result has rebalanced outward and return journeys more, as shown by the table below, with outward journeys in Waves 17 onwards now representing 52-56% rather than the 62-64% in earlier waves. In Wave 27 (Autumn 2012) a further re-alignment took place to move the outward/return ratio nearer to 50:50). This was partially successful, but was fine-tuned a little further from wave 29 onwards, resulting in the outward proportion varying between 49% and 52% from wave 29 onwards, as shown in the table below.

Table 6: Outward and return journey proportions –recent NRPS waves

	w19	w20	w21	w22	w23	w24	w25	w26	w27	w28	w29	w30	w31	w32	W33	W34	W35	W36
Outward	54	54	54	54	53	56	55	54	45	46	49	48	51	49	50	48	52	55
Return	42	41	42	42	43	41	41	42	51	49	47	47	45	46	45	47	44	39
One way trip only	3	4	3	3	3	3	3	3	3	4	3	3	4	4	4	4	3	4
Don't know/NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2

nb this question did not feature in the survey in Autumn 17 (w37) as it formed part of the Station Access module

Stage 1. Referencing previous shift plans

Although the sample plan is created from scratch every two years, a large number of the same stations will be sampled in every 2-year (4-wave) cycle; this is certainly the case for larger

stations. Therefore, a useful first stage of assigning days and times for each shift is to look at the days and times used in the previous wave (which used the previous sampling plan), and as far as possible, to replicate the shift details which were used then. This has two advantages: Firstly, a degree of stability is maintained from wave to wave, despite generating a completely new sample plan every two years. Secondly, it allows us to predict the likely outcome of many of the shifts, because we know how their direct comparison shifts performed in the past (i.e. we will have a very good idea of the likely number of completed surveys that can be generated from each shift, how many will be for weekdays versus weekend days, and how many will be for each TOC where multiple TOCs call at a station); this allows us to check the suitability of the sample plan, before it is implemented. Following the initial focus on the proportion of outward versus return journeys described above, we have also looked at how many questionnaires would likely be returned for outward and return journeys, as part of this process).

The diagram below shows a simplified example of this process:

- All the shifts for wave x (the previous wave) are listed, sorted by station, and within stations are then listed in randomised order;
- New shifts for wave y are then listed, sorted by station, and each shift takes the time and day details of equivalent shifts in wave x: so, the first shift in the list for a certain station, takes the details of the first-listed shift for that station, from the previous wave;
- In the illustration below, 7 shifts took place at Liverpool Street in wave x, and this station has been selected 8 times (i.e. for 8 shifts) in the next wave, wave y. Thus, the first 7 shifts in wave y take on the details of the shifts which took place in wave x, and the 8th shift will need completely new times and day details.

Table 7: Liverpool Street shift patterns example

Shifts conducted in wave x			Shifts to be conducted in wave y	
Station	Start time	Day	Station	Time/day
London Liverpool Street 1	06:00	Tue	London Liverpool Street 1	Use time and day details as in wave x
London Liverpool Street 2	17:00	Mon	London Liverpool Street 2	Use time and day details as in wave x
London Liverpool Street 3	15:00	Fri	London Liverpool Street 3	Use time and day details as in wave x
London Liverpool Street 4	08:00	Sat	London Liverpool Street 4	Use time and day details as in wave x
London Liverpool Street 5	16:00	Wed	London Liverpool Street 5	Use time and day details as in wave x
London Liverpool Street 6	12:00	Sun	London Liverpool Street 6	Use time and day details as in wave x
London Liverpool Street 7	07:00	Thu	London Liverpool Street 7	Use time and day details as in wave x
			London Liverpool Street 8	Requires new time and day details

The next illustration below shows the opposite effect, where a station has been selected fewer times than it was in the previous wave. Because the shifts from wave x have initially been randomised, there is no human bias in the selection of which shifts' details will be replicated.

Table 8: Nottingham shift patterns example

Shifts conducted in wave x			Shifts to be conducted in wave y	
Station	Start time	Day	Station	Time/day
Nottingham 1	08:00	Wed	Nottingham 1	Use time and day details as in wave x
Nottingham 2	14:00	Sat	Nottingham 2	Use time and day details as in wave x
Nottingham 3	16:00	Thu	Nottingham 3	Use time and day details as in wave x
Nottingham 4	17:00	Fri	Nottingham 4	Use time and day details as in wave x
Nottingham 5	13:00	Wed		
Nottingham 6	09:00	Mon		

Stage 2: Assigning days/times to "new" shifts

At the end of the process described above, we will be left with a set of shifts with no time or day assignment. Some of these will be at larger stations at which we have selected more shifts than in the previous wave, and some will be at (usually smaller) stations which were not covered in the previous wave.

This list of 'new' shifts is listed in a randomised order, and days of the week are assigned to this randomised list, according to the average weekday/weekend profiles for all journeys, as supplied by TOCs. For the sample plans used for Autumn 2018, these were:

Table 9: Weekday and Weekend shift pattern

Train Operating Company	Weekday	Weekend
Avanti West Coast	80%	20%
c2c	86%	14%
Chiltern Railways	82%	18%
CrossCountry	78%	22%
East Midlands Railway	82%	18%
Gatwick Express	77%	23%
Grand Central	71%	29%
Great Northern	85%	15%
Great Western Railway	71%	29%
Greater Anglia	86%	14%
Heathrow Express	78%	22%
Hull Trains	70%	30%
London North Eastern Railway	74%	26%
London Overground	80%	20%
Merseyrail	80%	20%
Northern	76%	24%
ScotRail	80%	20%
South Western Railway	85%	15%
Southeastern	86%	14%
Southern	86%	14%
TfL Rail	81%	19%
Thameslink	85%	15%
TransPennine Express	82%	18%
Transport for Wales	81%	19%
West Midlands Trains	85%	15%
Average	83%	17%

The profiles in this table are also used as part of the final weighting of NRPS results. More information about the weighting is given in section 6.3

So, when the new sample plan was generated in Autumn 2018, of the 'new' shifts, on average 83% were assigned at random to a weekday, and 17% were assigned at random to a weekend.

Within the weekdays, a fifth of these are assigned (again randomly) to each of Monday, Tuesday, Wednesday, Thursday and Friday. Within the weekend days, approximately half will be Saturdays and half will be Sundays.

Following this, time-bands are assigned, using the approximate proportions as shown in Table 4 as a start point. Note that there is also some judgement involved here, where we also take into account:

- the overall number of shifts (for the whole sample plan) in the mornings and afternoons/evenings, in order that we can also consider the implication that this is likely to have on the overall proportion of surveys completed for outward versus return journeys;
- information from TOCs about the proportion of journeys made on their networks for commuting, business and leisure reasons (this will also inform the overall shift-patterns across different times of day);
- the level of weighting which was required in previous waves, for journey purpose and day of week (for example if commuters needed to be down-weighted for a TOC, it may be appropriate to reduce the number of peak-time shifts at key stations serving that TOC, in subsequent waves).

4.3.2 Shift dates

Once times and days have been assigned to each of the planned shifts, the full list of all shifts in the sample plan is sorted in a random order, and a week number is assigned. There are usually ten weeks in a typical wave's fieldwork period, and so a week number between 1 and 10 is given. Weeks 1-3 are over-represented here by approximately +20%, in order that the fieldwork is slightly heavier at the outset; this enables early monitoring of progress and means that, if any additional 'top up' shifts are needed later to address likely sample size shortfalls, these can be arranged with minimised risk of causing a bottle-neck of fieldwork (and thus clustering in the sample) later on.

Some details of sample plans are shared with Network Rail station managers and TOC contacts in advance of fieldwork, and station managers are given the opportunity to alert us to:

- any clashes with other research which may be happening on site at stations;
- any significant local events such as major sports events which may impact the safety of fieldworkers;
- any outright station closures or outright lack of train services.

Some shift dates may then be changed as a result of these reasons, before fieldwork begins. However, note that fieldwork dates are not changed purely because there is anticipated disruption to rail services (if rail services are still in operation); this is because the NRPS rightly captures the experience of passengers including when they are disrupted.

4.3.3 Sense checks

Finally (before sharing the sample plans with station managers), a number of checks are performed on the sample plan to ensure the sample as a whole is balanced and looks sensible. These include:

- spread of shifts by week, by station – for stations which have several shifts, these are checked to ensure there is a reasonable spread by week, so that larger stations do not see a clustering of fieldwork all in a short space of time;
- spread of shifts by time, by station – again, for larger stations, checks are made to ensure there is at least a reasonable spread by time;
- spread of shifts by day of week, by time – the similar process again.

Where there is an obvious cluster of shifts around the same few weeks, around similar times, or all on the same day of the week, some manual changes may be made at this point. This is kept to a minimum, however, as it is desirable to keep the sample as natural and un-engineered as possible.

Quality Assurance checks on the sampling plan are also made, to ensure the sampling plan fully reflects any changes required either due to station or route changes and/or implementing feedback from analysing previous waves (for example, to deliberately increase the number of shifts in a particular area to improve the weighting efficiency of the sample). Please see any comments in Appendix H – Quality Assurance checklist relating to this.

4.4 Changes to shift plans during fieldwork period

There are two main reasons which mean the sample plan could be altered once fieldwork begins; reasons outside of our control and individual interviewer issues, such as illness.

Due to a freight train derailment on 23 January that badly damaged track and lineside equipment, there was no train services between Barking and South Tottenham for several weeks. A few NRPS shifts were cancelled and moved to a later date.

During fieldwork there was some periods of adverse weather. In early February Storm Ciara had an impact on a number of shifts with some having to be cancelled or achieving a low number of interviews. Then in mid-February Storm Dennis impacted the South West of the UK particularly, resulting in numerous train cancellations and delays (with some station and line closures). Several NRPS shifts had to be cancelled and rescheduled.

Unplanned engineering works, bus replacements and unexpected station closures, particularly at weekends, also meant some shifts had to be rescheduled.

Individual interviewer issues are also a factor e.g. held up on the way to a shift due to travel issues, illness or personal issues.

In total 213 shifts were moved due to these reasons.

Additional 'top up' shifts can be required to address any shortfalls in sample sizes.

Fieldwork for Spring 2020 started on the 27th January and was scheduled to run until early April. However, the rapid spread of the coronavirus pandemic meant that fieldwork ended on 16th March.

During the Spring 2020 wave, 15% of shifts from the original sampling plan (including shifts for the main NRPS and any booster samples) needed to be changed before or during fieldwork due to problems. The majority of these were a result of TOC feedback being received once fieldwork had started, fieldworker issues such as illness, but also included problems at the stations themselves (adverse weather or other disruption to rail services) and some minor administrative errors. When this happens, wherever possible shifts are rescheduled to the same day, at the same time, and during a week which is as close to the original as possible.

Table 10

TOC/station related issues	1.4%
Issues outside of our control (adverse weather, rail disruption)	0.8%
Interviewer issues (illness, travel problems etc)	12%

Throughout the fieldwork period, progress is monitored, and where response is a little lower than anticipated, 'top up' fieldwork shifts may be added to ensure that sample size targets for each TOC and building block are achieved. Top up shifts will be arranged at stations (or on trains for those TOCs and routes which are sampled on board trains) which serve the building blocks requiring extra help, and may be targeted towards the TOC in question, meaning the fieldworker is instructed to prioritise customers of that TOC, if more than one TOC calls at the station. Because the practical purpose of top up shifts is to address potential shortfalls, the stations selected are usually the busiest stations for the TOC or building block in question; however the total mix of stations already in the sample, and the number of shifts scheduled at each, will be taken into account here, to ensure that the busiest stations are not significantly over-sampled. Similarly, the time and day of a top up shift will be chosen to align with the busier periods at the station, but again the overall time of day and day of week pattern which is already in the sample plan for that station and that TOC will be taken into consideration, with a view to keeping an overall balance and minimising the weighting required at analysis stage as far as possible.

For this wave no top up shifts were undertaken, due to the early curtailment of fieldwork.

Feedback from the Quality Assurance Process relating to fieldwork are shown in Appendix H.

4.5 Sampling for surveys distributed on-train

Whilst the majority of NRPS questionnaires are distributed to passengers at stations before they board their trains, for some TOCs or TOC building blocks it is more appropriate to distribute the questionnaires on board the trains themselves.

All survey shifts for the non-franchised TOCs (Grand Central, Heathrow Express and Hull Trains) are conducted on trains, as this is the only practical way of ensuring a sufficiently large sample of customers (of all passenger footfall at stations where these TOCs call, the proportion made up by these TOCs' customers is generally small). For Heathrow Express, interviewing on trains between Heathrow and London Paddington also removes the possibility of giving a questionnaire to a passenger making an inter-terminal transit only.

Among the franchised TOCs, questionnaires for the following building blocks and complete TOCs are now distributed on board trains. These are where passenger numbers at individual stations are low, and where on station fieldwork had been shown to yield low numbers of questionnaires distributed and hence returned. For some TOCs (notably Northern and Transport for Wales, on-train distribution also enables a wider range of different small stations to be included in the sample; this means on-train distribution also generates a more representative and inclusive picture of passenger experience).

- Transport for Wales – all five building blocks
- London Overground – all five building blocks
- Northern – all four building blocks
- ScotRail – rural building block
- South West Trains – Island Line building block.

Note that a small proportion of the questionnaires for these 'on-train' TOCs will come from shifts which took place at stations. For example, fieldworkers will be distributing questionnaires at stations like Manchester Piccadilly in order to reach passengers using TransPennine Express, Virgin Trains, East Midlands Trains and CrossCountry; they are likely to also hand questionnaires out to some Northern passengers while doing this. Providing they relate to verified journeys these questionnaires will still be accepted and will contribute to the final results.

The procedure for determining fieldwork shifts to be conducted on train is:

- As described in section 4.1, the overall sampling process begins with identifying annual passenger volumes for each station, and therefore for each TOC and each building block. This information is used to determine the proportion of on-train fieldwork shifts which will be required on each part of a TOC's route network;
- Where an individual building block also divides into a number of different routes or branch lines, the published timetables are consulted to establish the number of services which are run by the TOC on each route or line. This informs how the shifts should be divided between the individual routes and lines (lines with more journeys should have a proportionately higher number of shifts). Individual station volumes are also taken into account here, to help determine how busy each route or branch line is, and again this will be used to inform the proportion of all shifts which should be allocated to each part of the network;
- Journeys are then manually defined for each shift in each section of the TOC's network, where fieldworkers can travel backwards and forwards along a route or section of route, for approximately three hours (although because the shifts are based around the timetables, some shifts may be a little longer or a little shorter). As far as possible these journeys will be defined such that as much of the whole network is covered as practically possible;
- Days and approximate times are assigned using the same principles as for at-station shifts, although again the exact times will naturally be determined by the TOC's timetable.

For TOCs which have only one building block or a very simple network (e.g. the non-franchised TOCs), or where on-train shifts are only relevant to one or two building blocks (e.g. Island Line), the procedure is a little different. In these cases, a list of all service departures through the week can be generated, and then individual departures are selected using a systematic approach, to form the start time of the fieldwork shifts.

For NRPS as a whole, results are weighted to help correct for natural differences in response rate at different times of day and days of week, and in different locations (this is described later in section 6.1). For all TOCs and building blocks where fieldwork is conducted on board trains, sampling plans may be amended slightly in subsequent waves (as with the at-station sampling), to improve the weighting efficiency over time.

4.6 Sample size

Each TOC has a target sample size. Initially, this was set at 500 for each TOC. However, the sample size for all London and South East TOCs was raised to 1,000, to allow separate analysis of peak and off-peak journeys. The complex route structure for Greater Anglia, Southeastern, Southern and South Western Railway led to the sample sizes for each of these franchises being increased to 1,500. South Western Railway was increased to 2000. All long distance services (Virgin Trains East Coast, First Great Western, East Midland Trains, Virgin Trains, CrossCountry and TransPennine Express) were increased to 1,000 sample size in 2001.

The ScotRail sample size was increased to 1,000 due to its complexity, whilst Island Line was reduced to 250 and then 100 due to its simplicity. The sample sizes for Heathrow Express, Heathrow Connect, Hull Trains and Grand Central are (or were) 500 each, reflecting a fairly simple operating structure for these open-access TOCs (Heathrow Connect existed up to Spring 2018). Sample sizes for Transport for Wales, TransPennine Express and Northern Rail were set at 750, 1,000 and 1,400 respectively, reflecting the relative complexity of the routes making up these franchises.

Sample sizes for First Great Western, Greater Anglia, First Capital Connect and South Western Railway were set at the sum of the sample sizes of their constituent parts (2,750, 2,000, 1,500 and 1,750 respectively) to enable TOC reports for each part of the new franchise to be produced and compared with earlier waves. For example, this was done for original TOCs FGW, FGWL, Wessex, Thameslink and WAGN. The sample size for Southern was increased to 2,000 when it absorbed Gatwick Express.

In the Autumn 2011 wave, sample sizes for Transport for Wales and London Overground were increased from 750 to 1,000, to compensate for the increased clustering present with the distribution of questionnaires for these TOCs changing from at-station to on-train (see section 2.4).

In the Autumn 2016 wave, sample sizes were amended following industry consultation, to bring some of the TOCs with larger and smaller sample sizes better into relative proportion with other TOCs in line with actual passenger volumes.

In Autumn 2018 wave, sample sizes were amended for TfL Rail when it started operating services on the former Heathrow Connect route that became part of TfL Rail. The target and achieved sample sizes for the Spring 2020 wave are shown below in Section 6.

4.7 Other sub-samples covered in NRPS reporting

As well as providing data for existing TOCs, the NRPS also provides data for a number of “virtual” TOCs. For the Spring 2020 Wave, these ”virtual” TOCs were:

- the three constituent parts of Great Western Railway – Long distance, Thames Valley and West;
- London North Western Railway (formerly London Midlands – West Coast and London Midlands – Commuter);
- Southern including Gatwick Express.

Data is also produced for the six PTE areas in England (West Midlands, West Yorkshire, South Yorkshire, TfGM, Merseytravel and Nexus), for the South East Wales Transport Alliance (SEWTA) area in Wales and for the Strathclyde area in Scotland. Each PTE area except Tyne & Wear has a notional target sample of 500 interviews about journeys starting and ending within the PTE area, although no boosts are undertaken to meet these notional targets. The Tyne & Wear area is much smaller than the others, and so any journey starting in the Tyne & Wear area counts towards the PTE analysis and the notional target sample size is 250. The TfGM area was redefined in Wave 25 to match that currently being used by TfGM. The definition of which stations fall in each PTE area is at Appendix E. For the first time in Wave 26, PTE data was weighted using the day of week and journey purpose profile produced from aggregating waves 16-25 (following analysis which had shown these weighted profiles to be fairly invariant between waves). This procedure has been continued since.

Since wave 29 an additional report, covering the London region, has also been produced. Although not a PTE, this follows similar principles in terms of journeys which are included.

5. In field

5.1 Questionnaire distribution

The key features of the way questionnaires are distributed are:

- Questionnaires are handed out evenly across a 3-hour interviewing shift, to ensure as wide a spread of passenger types and journeys as possible (as described earlier, shifts which take place on board trains may be longer or shorter than three hours, depending on the service timetable);
- Passengers are given the choice of completing via an online survey or a self-completion paper questionnaire with a reply paid envelope;
- The passenger's name and phone number are taken, this was randomly asked of one in every 10 passengers, for back checking purposes;
- Passengers are also asked the purpose of their journey, using the same codes as in the questionnaire itself;
- For some shifts, only passengers for a selected TOC are given questionnaires. Apart from on these shifts, questionnaires are given to any passengers about to board a train;
- Questionnaires are station specific, with the station name and the TOCs calling at the station pre-printed on the questionnaire. Questionnaires distributed on trains are also pre-printed with the TOC name;
- From the Spring 2003 wave onwards, all questionnaires have an 11 digit serial number pre-printed. The first four digits are a station code, the next four a shift code and the final three a sequence number;
- This serial number is also printed on the bottom of the front page as a barcode, which is scanned when questionnaires arrive back in the office. This allows us to quickly identify the returns from each shift on a dynamic basis and enables us to quickly identify shifts with low or no returns;
- From the Spring 2004 wave onwards, the station name is personalised throughout the questionnaire and all questionnaires are scanned rather than having data punched manually.

All distribution of questionnaires occurs between 06:00 and 22:00, during a three hour shift. The number of paper questionnaires distributed depends upon the station, day of week and time of day and ranges from 80 at a busy city centre station on a weekday to 2-3 at a small rural station. With the additional of offering online surveys in a few cases across the two methodologies we have been able to distribute 100 questionnaires during a shift.

Prior to Wave 17, all interviewing shifts had been at one of the times 06:00-09:00, 07:00-10:00, 10:00-13:00, 13:00-16:00, 16:00-19:00 and 19:00-22:00. In Wave 17, again taking on board one of the recommendations in the NRPS Review, all three hour time periods from 06:00-09:00 to 19:00-22:00 were used. This gives a better spread of journeys across the day and ensures more later evening journeys from 19:00 onwards (as these can now be picked up in shifts commencing 17:00, 18:00 and 19:00 rather than just those commencing at 19:00 as in previous waves).

Some shift times at smaller stations are amended to coincide with train departures e.g. if there are only two or three trains per day.

5.2 Data verification

Many checks are undertaken on NRPS data, before a questionnaire is allowed to pass through for analysis. Most of these revolve around checking that the journey claimed by the respondent is feasible.

The questionnaire asks the respondent to record where they disembarked from the train they boarded when given the questionnaire (Q1b). There is a need to check that the first leg journey as recorded is feasible and also that the destination of this leg is served by the TOC the respondent claimed to use.

We also code the origin and destination of the train the respondent uses, in addition to where they boarded and left that train. This is appended to the questionnaire data when the journey details are validated on Rail Planner.

When questionnaires are received back from respondents, these initial checks are carried out using the electronic railway timetable, from Rail Planner. The checks that are made are:

- Does a train leave the origin station at the time stated by the respondent?
- If so, is it a service of the TOC defined by the respondent?
- If so, does it call at the station written in at Q1b?
- If so, accept the data. If not, set aside for further investigation
- Does the train terminate at a Central London station and if so, is this before 10:00 on a weekday? This question is used to define morning peak journeys in the London and South East sector.

The data entry system does not accept any journey that violates any of these tests. Such questionnaires are set aside and investigated by the research executive team. If a stated time is just a minute or two different from a journey which is valid in all other respects (correct TOC, destination called at by train, no other TOC runs a service near this time), then the journey time may be altered and the questionnaire accepted. In Spring 2020 a total of 731 questionnaires were rejected and a further 400 were received after the cut off.

Once the questionnaire has been scanned and initial checks completed, the returns are reviewed for any potential errors which act as final checks that journeys are valid. These checks include identifying any questionnaires where:

- The origin and destination station are not valid for the TOC used;
- The origin and destination station are the same;
- The origin and destination of the train service itself are not valid for the TOC used;
- The origin and destination of the journey are not valid for at least one TOC building block;
- The origin and destination of the train are not valid for at least one building block.

From the Autumn 2004 Wave onwards, a question has been added to the questionnaire, to identify if any part of the first leg of the passenger journey was undertaken by replacement bus service, rather than by train. All such journeys are eliminated from the database, so that all journeys monitored by NRPS now include train-only journeys, with no part by replacement bus service.

However, the bus replacement journey basic log data is stored and can be analysed outside of the main NRPS database.

Where building blocks were station based, the journey could be assigned to a TOC building block by reference to the TOC and the station where the passenger boarded. Where building blocks are route based (as is the case for nearly all data from the autumn 2016 wave onwards), the assignment uses rules based upon the station of boarding and alighting and the origin and destination of the train. If all of these stations can only come from one building block, the assignment is made electronically; if the journey could have been assigned to more than one building block, an exception report is prepared as a prelude to manual assignment of the journey to a building block. The assignment of such journeys to building blocks is then made in conjunction with Transport Focus.

Checks are made following the Quality Assurance checklist and relevant comments are made in Appendix H.

5.3 Response rates

In the main Spring 2020 survey (Wave 42) a total of 128,990 paper questionnaires were distributed to fieldworkers for the main NRPS survey. The following tables show the breakdown of distribution and returns.

Table 11: Spring 2020, Wave 42 response breakdown

	Number of surveys	%
Number of paper & online surveys distributed to passengers	89,936	69.7% (hand out rate)
Number of paper	55,816	62.1% (uptake rate)
Number of online	34,120	37.9% (uptake rate)
Number of surveys returned	20,408	22.8% (return rate)
Number of valid surveys	19,847	22.7% (response rate)

Please note the hand out rate is much lower than normal, due to many questionnaires being distributed to fieldworkers for shifts which then did not take place due to the Coronavirus pandemic.

Table 12: Returns by method

	Number of surveys	% of total recruits (by method)
Paper	11,238	20.1%
Online	9,170	26.8%

Table 13: Network Rail Boost

An additional 7,980 questionnaires were printed for sample boosts for Network Rail. Again few were returned as many of the Network Rail shifts were scheduled at the end of the fieldwork period and were cancelled due to the pandemic.

	Number of surveys	
Number distributed	7,380	92.5% of printed q'naires
Number returned	970	13.1% of distributed q'naires

The table below shows a breakdown of the returns that were rejected

Table 14: Spring 2020, Wave 42 rejected questionnaire breakdown

Reason	Number of paper surveys	% of total returned
Received after cut-off	400	2.0%
Unresolvable problems (date/time/journey problems)	534	2.6%
Blank/incomplete surveys	105	0.5%
Other reasons (such as used underground)	92	0.5%

6. Weighting

Although the sample is designed to generate the right number of responses from each type of station, differential response rates mean this does not exactly happen in practice. Furthermore, although the sample shifts are allocated to days and times to generate the "right" profile of passengers, weighting is employed to ensure sound estimates that do relate to the TOC as a whole. Finally, the gradual increase in building blocks, often with differential sampling rates, means that weighting is required to correct.

RIM weighting is applied across four conditions:

- Passenger volumes interlocked across a) building block and b) station size
- c) Proportional weighting for journey purpose by TOC
- d) Proportional weighting for weekday/weekend by TOC

To allocate the building blocks the questionnaires responses are analysed across the whole route assessing the start station, end station, train origin and train destination. These four factors determine which building block should be applied. The only exception to this approach is for Northern TOC where, in Autumn 18, they made the decision to use the start station alone to denote the building block classification and not the whole route. Unlike other building blocks where each station could occur in more than one Building Block Northern has made each station exclusive to a Building Block. For e.g.: - Manchester Piccadilly will be always be in Northern – Central BB and Blackpool South will be Northern – West BB.

A station size is allocated to every station within each building block and is based on passenger volumes within that building block. Station size is categorised as Very large, Large, Medium and Small and the passenger start station is the dependant variable. Data for each TOC building block is then weighted using the profile of passenger numbers for each of the four station size segments for that TOC building block.

The data for each TOC is then weighted by weekday/weekend and journey purpose (Commuter/Business/Leisure), and grossed up to the estimated number of passenger journeys for that TOC building block. This means that the weighted data for a number of TOCs or building blocks can be simply aggregated (e.g. to generate data for a virtual TOC or a TOC type).

All the data used in this weighting was updated in Summer 2016 in advance of the completely new sample plan generation for the Autumn 2016 wave. Data from the ORR and other sources was used to estimate journeys starting from each station for each TOC, and was sent out by Transport Focus to each TOC for verification, along with the existing weights for journey purpose and day of week. TOCs updated these figures in some cases. The same procedure was followed in Summer 2018. Appendix D gives the resultant data used in the weighting regime for the main survey in Spring 2020.

6.3.1 Weighting efficiency

The impact of any weighting regime is to reduce the final effective base size. In the case of the weighting for the NRPS, the impact on the effective base size for each TOC varies considerably (see Table below) and in some cases the weighting significantly reduces the effective base size. This occurs when the profile of the actual data set varies significantly from the weighting profile.

Table 15: Unweighted and Effective base sizes by TOC for Spring 2020

TOC	Unweighted total	Effective Weighted Sample	Weighting efficiency
Avanti West Coast	641	441	69%
c2c	619	438	71%
Chiltern Railways	818	470	57%
CrossCountry	932	714	77%
East Midlands Railway	637	370	58%
Gatwick Express	416	205	49%
Grand Central	395	331	84%
Great Northern	314	251	80%
Great Western Railway	1032	520	50%
Greater Anglia	1016	494	49%
Heathrow Express	533	411	77%
Hull Trains	427	289	68%
London North Eastern Railway	753	331	44%
London Overground	1244	898	72%
Merseyrail	525	183	35%
Northern	1004	611	61%
ScotRail	1025	528	52%
South Western Railway (inc Island Line)	1471	1049	71%
Southeastern	1345	711	53%
Southern	899	774	86%
TfL Rail	825	533	65%
Thameslink	852	661	78%
TransPennine Express	668	404	61%
Transport for Wales	781	246	31%
West Midlands Trains	675	492	73%

The overall weighting efficiency is 63%. This is a couple of points below the previous wave, largely due to the sudden end to fieldwork and the inability to target shifts in the last 2-3 weeks towards those criteria most adrift of target. The TOCs with the lowest weighting efficiencies in Wave 42 were as follows:

Table 16 – TOCs with lowest weighting efficiencies

Transport for Wales	31%
Merseyrail	35%
London North Eastern Railway	44%
Greater Anglia	49%
Gatwick Express	49%
Great Western Railway	50%
ScotRail	52%
Southeastern	53%

In the tables below, we look for areas where the sample profile for these TOCs is most adrift of target, so that the sampling plan for the next wave can try and focus on these specific areas, in order to increase the weighting efficiency, both for these TOCs and overall.

Table 17: Achieved vs weighted profile for journey purpose in Spring 2020

Train Operating Company	JOURNEY PURPOSE					
	Achieved			Weighted		
	COMMUTE	BUSINESS	LEISURE	COMMUTE	BUSINESS	LEISURE
Avanti West Coast	25	28	47	9	22	69
c2c	65	4	31	67	6	27
Chiltern Railways	39	18	42	38	25	37
CrossCountry	32	18	49	15	28	57
East Midlands Railway	44	19	37	23	28	49
Gatwick Express	35	19	47	15	44	40
Grand Central	12	15	73	5	28	67
Great Northern	52	9	39	53	10	37
Great Western Railway	38	17	45	28	20	52
Greater Anglia	47	12	41	44	25	31
Heathrow Express	16	43	41	2	49	49
Hull Trains	18	21	61	10	45	45
London North Eastern Railway	18	29	53	9	31	60
London Overground	57	5	38	61	3	37
Merseyrail	59	3	38	44	1	55
Northern	43	7	50	38	9	53
ScotRail	41	11	48	39	13	47
South Western Railway	46	10	44	53	15	32
Southeastern	47	8	45	48	21	31
Southern	47	8	45	52	9	39
TfL Rail	66	4	30	61	4	35
Thameslink	59	9	31	53	10	37
TransPennine Express	38	17	45	26	13	61
Transport for Wales	43	9	48	31	10	59
West Midlands Trains	45	7	48	40	13	46

For the seven TOCs with below average weighting efficiency, four need upweighting on leisure journeys (Transport for Wales, Merseyrail, London North Eastern Railway and Great Western Railway), two on business journeys (Greater Anglia, Southeastern) and one (Scotrail) has broadly the correct profile.

Table 18: Achieved vs weighted profile for day of week

Train Operating Company	DAY OF THE WEEK			
	Achieved		Weighted	
	WEEKDAY	WEEKEND	WEEKDAY	WEEKEND
Avanti West Coast	82	18	80	20
c2c	91	9	86	14
Chiltern Railways	95	5	82	18
CrossCountry	82	18	78	22
East Midlands Railway	84	16	82	18
Gatwick Express	86	14	77	23
Grand Central	69	31	71	29
Great Northern	92	8	85	15
Great Western Railway	87	13	71	29
Greater Anglia	93	7	86	14
Heathrow Express	84	16	78	22
Hull Trains	79	21	70	30
London North Eastern Railway	94	6	74	26
London Overground	78	22	80	20
Merseyrail	97	3	81	19
Northern	88	12	76	24
ScotRail	80	20	80	20
South Western Railway	85	15	85	15
Southeastern	82	18	86	14
Southern	88	12	86	14
TfL Rail	95	5	97	3
Thameslink	91	9	85	15
TransPennine Express	93	7	82	18
Transport for Wales	91	9	81	19
West Midlands Trains	83	17	85	15

All the four TOCs requiring upweighting of leisure journeys require upweighting of weekend journeys, so the solution here is to increase the number of weekend shifts. One of the TOCs requiring upweighting of business journeys (Southeastern) requires more weekday passengers as well, so the solution here is to increase the number of weekday shifts.

ScotRail, which required no real weighting by journey purpose also requires no real weighting by day of the week so the reason for the lower weighting efficiency must be due to building block differences.

Greater Anglia requires more business journeys but also more weekend journeys, so the solution here must also be due to building block differences.

The early curtailment of fieldwork will also have impacted on the ability of the agency to meet the targets for each TOC.

Table 19 below shows how the sample profile and weighted profile for each TOC differ by building block and station size band.

Table 19: Achieved vs weighted profile for station size

Building Block	Achieved				Weighted			
	Station Size				Station Size			
	Small	Medium	Large	Very Large	Small	Medium	Large	Very Large
Avanti West Coast								
London - Birmingham – Scotland	5.62	3.12	8.27	4.37	5.18	5.82	5.16	4.52
London – Liverpool	1.25	3.28	0.00	4.68	2.44	3.03	0.00	3.65
London – Manchester	5.62	11.86	0.00	7.64	7.95	11.23	0.00	9.53
London - North Wales	1.56	1.25	0.00	4.06	1.45	1.92	0.00	2.09
London – Scotland	1.09	1.72	1.56	8.27	3.79	2.68	2.32	4.04
London - Wolverhampton	8.27	7.96	0.00	8.58	9.37	6.50	0.00	7.30
c2c								
Southend Line	21.97	23.10	5.49	14.86	18.76	21.01	9.00	17.49
Tilbury Line	1.78	11.31	11.95	9.53	9.08	8.00	10.83	5.83
Chiltern Railways								
Commuter	3.18	5.26	1.96	9.90	9.59	8.01	3.54	13.79
Metro	7.33	7.33	0.00	9.17	9.09	8.71	0.00	11.67
Oxford	6.36	5.26	0.00	8.80	4.50	2.58	0.00	3.18
West Midlands	8.07	5.87	2.69	18.83	7.75	6.49	4.39	6.72
CrossCountry								
East – West	6.12	6.76	3.86	6.33	6.79	6.83	2.55	8.89
North - South Manchester	6.65	8.58	3.97	3.33	7.67	7.05	6.87	6.07
North - South Scotland & North East	8.37	19.31	14.70	12.02	11.83	14.39	11.99	9.08
East Midlands Railway								
Liverpool – Norwich	5.02	8.32	9.58	3.77	5.83	4.88	5.05	5.23
Local	2.51	1.73	10.20	6.91	6.22	6.13	8.10	4.01
London	8.32	8.79	5.18	29.67	14.95	15.08	7.42	17.10
Gatwick Express	10.58	29.09	0.00	60.34	28.58	26.65	0.00	44.77
Grand Central								
London – Bradford	8.61	11.39	0.00	16.71	10.49	10.51	0.00	15.80
London – Sunderland	17.97	17.22	0.00	28.10	18.13	22.13	0.00	22.94

Building Block	Achieved				Weighted			
	Station size band				Station size band			
	Small	Medium	Large	Very Large	Small	Medium	Large	Very Large
Great Northern	18.15	28.03	29.62	24.20	25.91	31.08	27.14	15.87
Thameslink								
Kent	7.04	4.69	1.06	3.64	3.76	3.82	3.08	3.27
Loop	3.05	2.70	2.93	4.34	2.58	2.98	1.95	2.07
North/South	11.97	10.21	30.87	17.49	20.03	19.39	19.92	17.14
Great Western Railway								
London Thames Valley	7.95	9.88	8.33	3.00	11.04	11.86	11.00	9.44
Long Distance	6.30	10.47	14.53	22.48	8.96	9.46	7.16	9.44
West	1.36	3.10	1.55	11.05	5.54	5.36	5.48	5.25
Greater Anglia								
Intercity	5.71	1.18	0.39	10.83	3.32	3.45	2.71	3.48
Mainline	6.40	8.86	3.05	19.39	11.15	12.19	4.83	13.87
Rural	2.76	0.98	1.38	2.36	2.34	2.84	1.60	2.54
Stansted Express	4.43	0.00	0.00	3.74	2.46	0.00	0.00	4.03
West Anglia	1.77	3.62	1.61	5.06	4.33	4.46	4.67	3.27
Heathrow Express	30.39	20.08	0.00	49.53	27.44	34.71	0.00	37.84
Hull Trains	29.74	25.29	0.00	44.96	29.57	30.50	0.00	39.93
London North Eastern Railway								
London - Leeds and West Yorkshire	9.43	7.70	0.00	12.35	9.26	14.70	0.00	12.07
London - Newcastle/Sunderland and East Yorkshire	8.50	1.33	0.00	4.91	5.40	3.34	0.00	5.87
London – Scotland	1.09	1.72	1.56	8.27	3.79	2.68	2.32	4.04
London Overground								
Gospel Oak – Barking	1.85	1.69	1.13	1.77	0.87	1.02	0.51	0.98
Highbury & Islington - Croydon/Clapham	13.02	9.24	8.52	1.45	9.95	8.95	12.07	6.63
Richmond/Clapham – Stratford	11.41	8.52	13.91	7.23	9.36	8.84	10.34	6.82
Watford – Euston	2.33	2.33	3.30	0.24	1.85	1.82	2.26	0.98
West Anglia	1.77	3.62	1.61	5.06	4.33	4.46	4.67	3.27
Merseyrail								
Northern	2.86	18.29	14.10	21.52	15.15	14.00	14.42	13.74
Wirral	1.52	7.43	29.33	4.95	9.24	12.03	14.97	6.45

Building Block	Achieved				Target			
	Station size band				Station size band			
	Small	Medium	Large	Very Large	Small	Medium	Large	Very Large
Northern								
Central	3.09	4.68	7.47	11.85	8.52	8.70	8.42	8.26
East	5.58	7.47	14.74	14.54	11.13	10.90	11.39	10.00
North East	2.89	2.49	6.37	1.59	1.35	1.31	1.61	1.02
West	1.36	3.10	1.55	11.05	5.54	5.36	5.48	5.25
ScotRail								
Interurban	4.68	21.66	0.00	7.12	6.63	10.61	0.00	6.84
Rural	2.76	0.98	1.38	2.36	2.34	2.84	1.60	2.54
Strathclyde	7.02	1.56	6.44	17.95	15.27	5.77	22.53	16.62
Urban	1.85	4.59	9.46	16.59	3.45	3.79	3.24	3.22
South Western Railway								
Island Line	1.43	3.13	0.00	0.61	0.11	0.13	0.00	0.12
Longer Distance	3.67	25.70	0.00	11.08	7.83	10.75	0.00	12.02
Metro	7.33	7.33	0.00	9.17	9.09	8.71	0.00	11.67
Outer Suburban & Local	1.70	10.06	9.45	7.21	2.78	16.30	10.42	7.73
Southeastern								
High Speed	1.78	1.93	3.35	2.08	2.55	2.09	1.47	2.70
Mainline	6.40	8.86	3.05	19.39	11.15	12.19	4.83	13.87
Metro	7.33	7.33	0.00	9.17	9.09	8.71	0.00	11.67
Southern								
Metro	7.33	7.33	0.00	9.17	9.09	8.71	0.00	11.67
Sussex Coast	8.79	12.90	28.36	8.34	14.11	14.97	15.66	11.31
TfL Rail								
West (formerly Heathrow Connect)	14.18	10.42	5.58	13.21	3.83	2.02	2.42	3.22
TfL East (formerly Tfl Rail)	16.73	25.09	0.00	14.79	25.81	36.52	0.00	26.19
Thameslink								
Kent	7.04	4.69	1.06	3.64	3.76	3.82	3.08	3.27
Loop	3.05	2.70	2.93	4.34	2.58	2.98	1.95	2.07
North/South	11.97	10.21	30.87	17.49	20.03	19.39	19.92	17.14
TransPennine Express								
North	13.62	22.90	19.46	23.20	18.17	18.28	18.93	13.77
North west	6.14	3.44	0.00	0.15	6.21	14.12	0.00	0.83
South	2.54	1.80	4.94	1.80	2.73	2.74	1.65	2.57

	Achieved				Target			
	Station size band				Station size band			
	Small	**Medium**	**Large**	**Very Large**	**Small**	**Medium**	**Large**	**Very Large**
Transport for Wales								
Cardiff and Valleys	7.81	3.59	2.05	1.79	10.19	10.02	8.75	10.77
Interurban	4.68	21.66	0.00	7.12	6.63	10.61	0.00	6.84
Mid Wales and Borders	3.33	9.35	5.25	5.76	2.93	3.17	3.55	1.94
North Wales and Borders	3.33	1.28	1.79	0.51	4.13	3.97	3.24	4.12
South Wales and Borders/West Wales	4.74	2.69	1.41	1.28	5.22	5.40	4.40	5.39
West Midlands Trains								
London Commuter	2.52	6.22	3.56	7.11	5.39	4.90	3.67	6.42
West Coast	4.30	8.74	0.00	3.26	7.21	10.85	0.00	9.40
West Midlands	8.07	5.87	2.69	18.83	7.75	6.49	4.39	6.72

Taking these results together suggest the following remedies for the seven TOCs with below average weighting efficiencies:

Table 20 – these TOCs need more of the following type of passenger

TOC	Journey purpose	Day of week	Building block station size	Remedy
Transport for Wales	Leisure	Weekends	Cardiff & Valleys North Wales & Borders South Wales & Borders / West Wales	More weekend shifts in these building blocks
Merseyrail	Leisure	Weekends		More weekend shifts
London North Eastern Railway	Leisure	Weekends		More weekend shifts
Great Western Railway	Leisure	Weekends	London Thames Valley	More weekend shifts in these building blocks
Southern	Business	Weekdays		More weekday shifts
ScotRail			Strathclyde	More weekend shifts in these building blocks
Greater Anglia	Business	Weekends	Intercity/Medium and Large stations	More shifts in these building blocks

These remedies should be built into the sampling plan for the next wave and the effect observed on the weighting efficiencies for the TOCs concerned.

6.3.2 PTE weighting

Reports are produced for each PTE area using data from the main survey and any boosts that have been undertaken. The Reports produced for PTE areas use a different weighting regime, which uses profiles derived from the main survey. The aggregate profile for the past ten waves tends to be used, to ensure a level of stability. The targets and weighted profile used on this occasion and the previous wave are as follows:

Table 21

	Target – ten wave average				
PTE	Commute	Business	Leisure	Weekday	Weekend
Merseytravel	39%	7%	54%	80%	20%
Nexus	16%	17%	67%	88%	12%
SE Wales	31%	11%	59%	87%	13%
South Yorkshire	40%	8%	52%	91%	9%
Strathclyde	41%	5%	54%	77%	23%
West Yorkshire	48%	6%	46%	87%	13%
West Midlands	38%	10%	52%	81%	19%
TfGM	50%	5%	45%	85%	15%
London	59%	8%	33%	86%	14%
	Autumn 2019 – weighted				
Merseytravel	50%	5%	44%	90%	10%
Nexus	20%	26%	54%	92%	8%
SE Wales	48%	10%	42%	88%	12%
South Yorkshire	37%	14%	50%	86%	14%
Strathclyde	35%	7%	58%	69%	31%
West Yorkshire	43%	15%	42%	91%	9%
West Midlands	39%	13%	48%	85%	15%
TfGM	40%	15%	45%	92%	8%
London	47%	11%	42%	85%	15%
	Spring 2020 – weighted				
Merseytravel	59%	3%	38%	96%	4%
Nexus	19%	22%	59%	94%	6%
SE Wales	65%	4%	31%	89%	11%
South Yorkshire	66%	2%	32%	90%	10%
Strathclyde	46%	3%	51%	71%	29%
West Yorkshire	48%	8%	45%	84%	16%
West Midlands	48%	6%	47%	84%	16%
TfGM	65%	5%	30%	97%	3%
London	57%	6%	37%	85%	15%

In general, PTE's include too many Commuter journeys, which are weighted down and too few Business journeys, which are weighted up. These results parallel those in NRPS more generally. As a result of the weighting, the weighting efficiency for PTE's in Spring 2020 ranges from 51% to 72% and overall is 67%.

6.3.3 Network Rail station weighting

Reports are also produced for the Stations managed by Network Rail (individually) and those not. The Network Rail managed stations report uses weights supplied each wave by Populus, the targets and weighted profiles by day and time of day of the Spring 2020 wave are shown below:

Table 22

STATION	*Target %*					*Achieved Spring 2020 (%)*				
	Weekday before 10	Weekday 10-15.59	Weekday 16-18.59	Weekday 1900 or later	Weekend	Weekday before 10	Weekday 10-15.59	Weekday 16-18.59	Weekday 1900 or later	Weekend
BIRMINGHAM NEW STREET	10%	31%	31%	4%	23%	16%	34%	28%	0%	21%
BRISTOL TEMPLE MEADS	11%	31%	30%	5%	23%	14%	33%	29%	5%	19%
CARDIFF CENTRAL	25%	28%	23%	7%	17%	38%	33%	19%	2%	8%
CARDIFF QUEEN STREET	9%	31%	34%	0%	26%	50%	10%	0%	0%	40%
EDINBURGH	7%	33%	30%	4%	26%	17%	23%	37%	6%	16%
GLASGOW CENTRAL	11%	27%	33%	3%	26%	8%	51%	13%	1%	26%
GUILDFORD	41%	11%	36%	3%	10%	30%	17%	39%	9%	5%
LEEDS	14%	30%	32%	3%	20%	31%	38%	19%	4%	9%
LIVERPOOL LIME STREET	7%	37%	25%	2%	29%	10%	38%	32%	2%	17%
LONDON BRIDGE	11%	23%	42%	7%	18%	17%	14%	46%	15%	9%
LONDON CANNON STREET	6%	16%	73%	4%	2%	10%	24%	49%	6%	10%
LONDON CHARING CROSS	10%	23%	42%	7%	18%	6%	18%	47%	8%	21%
LONDON CLAPHAM JUNCTION	26%	29%	20%	4%	21%	14%	38%	22%	8%	18%
LONDON EUSTON	7%	32%	34%	5%	22%	33%	21%	34%	7%	5%
LONDON KINGS CROSS	7%	32%	34%	5%	22%	13%	45%	21%	6%	15%
LONDON LIVERPOOL STREET	9%	28%	42%	6%	14%	5%	23%	48%	15%	9%
LONDON PADDINGTON	12%	28%	35%	7%	19%	26%	42%	11%	1%	19%
LONDON ST PANCRAS	7%	27%	31%	11%	25%	11%	36%	29%	6%	18%
LONDON VICTORIA	15%	26%	32%	6%	20%	10%	49%	27%	2%	12%
LONDON WATERLOO	12%	24%	39%	8%	16%	0%	35%	34%	4%	28%
MANCHESTER PICCADILLY	9%	34%	31%	5%	21%	9%	29%	43%	2%	16%
READING	17%	32%	20%	6%	24%	26%	16%	37%	8%	13%

For most Network Rail stations, there is oversampling at peak weekday periods and undersampling at other times, although there are stations that run against this pattern.

There are also targets for each station by TOCs which are shown in the table below

Table 23

Station	TOC	Achieved Spring 2020 (%)	Target - Populus
London Charing Cross	Southeastern	100.00%	100.00%
London Cannon Street	Southeastern	100.00%	100.00%
London Euston	West Midlands Trains	20.28%	38.13%
	London Overground	7.50%	6.28%
	Avanti West Coast	72.22%	55.59%
London Kings Cross	London North Eastern Railway	34.41%	48.23%
	Great Northern	11.18%	47.33%
	Hull Trains	28.24%	2.23%
	Thameslink	0.15%	0.00%
	Grand Central	26.03%	2.21%
London Bridge	Thameslink	41.31%	25.91%
	Southeastern	26.23%	53.45%
	Southern	32.46%	20.65%
London Liverpool Street	Greater Anglia (excluding Stansted Express)	65.04%	46.42%
	London Overground	9.62%	17.69%
	TfL Rail	21.53%	24.47%
	Stansted Express	3.82%	11.42%
London Paddington	Great Western Railway	42.97%	81.89%
	TfL Rail	13.89%	7.45%
	Heathrow Express	43.14%	10.66%
London St Pancras	East Midlands Railway	52.94%	16.13%
	Thameslink	39.22%	37.44%
	Southeastern	7.84%	27.39%
	Great Northern	0.00%	19.00%
London Victoria	Gatwick Express	39.10%	12.30%
	Southeastern	39.88%	25.56%
	Southern	21.03%	62.14%
London Waterloo	South Western Railway	100.00%	100.00%
Birmingham New Street	Transport for Wales	7.83%	3.64%
	CrossCountry	31.80%	23.13%
	West Midlands Trains	40.55%	55.35%
	Avanti West Coast	19.82%	17.88%
Edinburgh	CrossCountry	9.39%	6.93%
	London North Eastern Railway	14.69%	14.70%
	TransPennine Express	7.14%	2.48%
	ScotRail	65.31%	73.09%
	Avanti West Coast	3.47%	2.80%
Glasgow Central	CrossCountry	4.80%	2.20%
	London North Eastern Railway	0.00%	0.11%
	TransPennine Express	3.06%	1.50%
	ScotRail	85.15%	90.42%
	Avanti West Coast	6.99%	5.76%

Station	TOC	Achieved Spring 2020 (%)	Target - Populus
Leeds	CrossCountry	5.49%	7.14%
	London North Eastern Railway	11.81%	11.79%
	TransPennine Express	42.58%	25.62%
	East Midlands Trains	0.00%	0.07%
	Northern	40.11%	55.39%
Liverpool Lime Street	East Midlands Railway	4.57%	3.60%
	TransPennine Express	20.55%	14.00%
	Transport for Wales	3.20%	5.00%
	West Midlands Trains	5.48%	8.70%
	Merseyrail	20.55%	25.90%
	Northern	36.07%	31.90%
	Avanti West Coast	9.59%	10.90%
Manchester Piccadilly	Transport for Wales	12.42%	4.36%
	CrossCountry	11.74%	11.40%
	East Midlands Railway	2.01%	3.61%
	TransPennine Express	26.17%	18.89%
	Northern	31.21%	38.70%
	Avanti West Coast	16.44%	23.04%
Reading	CrossCountry	6.93%	13.36%
	Great Western Railway	61.72%	73.53%
	TfL Rail	15.18%	0.00%
	South Western Railway	16.17%	13.11%
Bristol Temple Meads	CrossCountry	46.67%	21.32%
	Great Western Railway	52.96%	77.09%
	South Western Railway	0.37%	1.59%
Clapham Junction	Southern	35.59%	39.55%
	South Western Railway	51.41%	44.67%
	London Overground	12.99%	15.78%
Guildford	Southern	1.11%	0.70%
	CrossCountry	0.00%	0.29%
	Great Western Railway	15.93%	18.73%
	South Western Railway	82.96%	80.28%

The weighting at TOC level is at its most severe for several London stations including Kings Cross, Liverpool Street, London Bridge, Paddington, St Pancras and Victoria.

As a result of the weighting, the weighting efficiency for Network Rail stations in Spring 2020 vary from 34% to 94% and average at 65%.

7. Derivation of key factors affecting customer satisfaction

8.1 Aspects of rail journeys covered by NRPS

Before the first wave of NRPS was undertaken in Autumn 1999, TORA undertook some preliminary research. The aim of this research was to identify all the issues that passengers felt important to them as part of their rail journeys, so that all such issues could be monitored in NRPS.

This initial research comprised:

- a qualitative element (eight focus groups and seven depth interviews among disabled customers), to generate the list of dimensions passengers viewed as important to them;
- a quantitative element (conjoint analysis) to rank these dimensions and identify the most important of them.

From this initial research, a list of 25 key questions was derived, and these have been used in all waves of NRPS. Two additional measures, relating to personal security at the station and on the train, were added in Autumn 2002, bringing the total number of questions to 27.

One element of the new contract awarded to Continental Research in December 2002 was a requirement to validate the list of dimensions used since Autumn 1999, and see if it was still relevant. There were two aspects to this:

- Are all the questions currently measured important to rail passengers in evaluating their journeys;
- Are there any questions missing from the current list.

Two approaches were used to answer this:

- Multivariate analysis was undertaken on all data from Waves 1 to 7, to see how much of the variation in overall journey satisfaction was explained by the 25 questions collected in each of those waves. The notion here was that if most of the variation in overall journey satisfaction was explained by these questions, there were unlikely to be any key missing questions;
- In the event, only around 65% of the total variation in overall journey satisfaction was accounted for, suggesting that other questions might be present;
- Further qualitative research was therefore undertaken in May 2003, to try and identify any missing dimensions. Eight focus groups were undertaken, covering leisure, commuter and business travellers and covering urban, suburban and rural locations. The key conclusion was that for frequent passengers, there were no measures on the following:
    - Presence of staff on the station;
    - Presence of staff on the train;
    - Cleanliness of the outside of the train;
    - Cleanliness of the inside of the train.

- These questions have been incorporated into the questionnaire – the cleanliness questions from Autumn 2003 and the availability of staff from Spring 2004 (these availability questions were originally only asked of regular travellers on a route but this was changed to all respondents in the Spring 2004 survey).

Overall satisfaction with the station was added as a new measure in Autumn 2010, to provide a direct overall measure of station performance.

Three new questions were added in Autumn 2012:

- Overall satisfaction with the train;
- The availability of shelter facilities at the station;
- The availability of seating at the station.

The first of these was added to try and understand which of the individual train questions is driving satisfaction with the train element of the journey (just as the overall station satisfaction score has been used to identify which of the station questions drives that).

In Spring 2013, 'The choice of shops/eating/drinking facilities available' at the station was also added.

In Autumn 2016, 'Availability of Wi-Fi' at the station was added in Autumn 2016 was added.

In Spring 2017, 'Sufficient room for all the passengers to sit / stand' and 'The ease of being able to get on and off the train' on the train was dropped (see Table 21). Also 'The comfort of the seating area' was renamed to 'Comfort of seats'. The 'Availability of Wi-Fi' on the train was also added.

In Autumn 2017, 'Oyster Pay as You Go' was added as a ticket option, 'Availability of Wi-Fi on train' was replaced with 'Reliability of the Internet connection'.

In Autumn 2018, 'Oyster Pay as You Go' was replaced with 'Used Oyster, smartcard or contactless'.

Table 23: Questions added in chronological order

Year	Autumn 2002	Autumn 2003	Spring 2004	Autumn 2010	Autumn 2012
Questions added	• Personal security on the train • Personal security at the station	• Cleanliness of the outside of the train • Cleanliness of the inside of the train	• Presence of staff on train • Presence of staff at station	• Overall satisfaction with the station	• Overall satisfaction with the train • The availability of shelter facilities at the station • The availability of seating at the station
No. of factors	27	29	31	32	35

Year	Spring 2013	Autumn 2016	Spring 2017	Autumn 2017
Questions added	• The choice of shops/eating/drinking facilities available at the station	• Availability of Wi-Fi at the station	• Toilet facilities at the station • The step or the gap between the train and the platform • Level of crowding • Availability of power sockets • Availability of Wi-Fi on the train Question text changes: • The 'comfort of the seating area' changed to 'Comfort of seats' • The 'provision of shelter facilities' changed to 'shelter facilities' • Removed 'the' from all statements for e.g.:- the space for luggage changed to 'space for luggage'. Questions removed: • Facilities and services at the station • The ease of being able to get on and off the train • 'Sufficient room for all passengers to sit/stand'	• Oyster pay as you go added at Q4 Question text changes: • The 'Availability of Wi-Fi on the train' changed to 'Reliability of the Internet connection'

Year	Spring 2018	Autumn 2018	Spring 2019	Autumn 2019
Questions added	• The outward and return journey question, previously only featuring on the 'Access' module now features on the 'Fares and Ticketing' section so that is now asked of all survey participants.	• Oyster pay as you go changed to 'Used Oyster smartcard or contactless	• How often passengers make their train journey when they were handed a questionnaire • A new answer option '26-30 Railcard' was included to record those who had used this to reduce their fare.	• A new answer option '16-17 Railcard' was included to record those who had used this to reduce their fare

The full list of the 41 key questions used in key reports:

Full List of 41 questions measured in NRPS:

18 STATION QUESTIONS:

Ticket buying facilities

Provision of information about train times / platforms

The upkeep/ repair of the station buildings/ platforms

Cleanliness of the station

Toilet facilities at the station

Attitudes and helpfulness of the staff

Connections with other forms of public transport

Facilities for car parking

Facilities for bicycle parking (not included in the multivariate analysis)

The overall station environment

Your personal security whilst using that station

How request to station staff was handled

Availability of staff at the station

Overall satisfaction with the station (not used in the multivariate analysis)

Shelter facilities

Availability of seating

Choice of shops/eating/drinking facilities available

Availability of Wi-Fi

23 TRAIN QUESTIONS:
The frequency of the trains on that route
Punctuality / reliability (i.e. the train arriving / departing on time)
Length of time the journey was scheduled to take (speed)
Connections with other train services
Value for money of the price of your ticket
Upkeep and repair of the train
Provision of information during the journey
Helpfulness and attitude of staff on train
Space for luggage
The toilet facilities
Comfort of the seats
Space for bicycles (not included in the multivariate analysis)
Your personal security whilst on board the train
Availability of staff on the train
Cleanliness of the inside of the train
Cleanliness of the outside of the train
How well train company dealt with delays
Overall satisfaction with the train (not used in the multivariate analysis)
*Usefulness of information about the delay (not used in multivariate analysis)
Level of crowding
The step or gap between the train and the platform
Reliability of the Internet connection
Availability of power sockets

*Usefulness of information about the delay was added to the key reports in Autumn 18

All the dimensions are rated by respondents on five point verbal scales, either a satisfaction scale or a good/poor scale. There is a final option for did not use/no opinion.

8.2 Multivariate analysis to derive which journey aspects are most important

To determine the relative importance of each individual measure in influencing overall satisfaction with journey, multivariate analysis is now undertaken every wave – nationally, by TOC type and by individual TOC and building block.

For the analysis to derive the criteria which are important to overall journey satisfaction, all of the measures in the list on the previous page are included, except for “overall satisfaction with the station”, “overall satisfaction with the train”, “usefulness of information during delay” and “cleanliness of the train” (the latter is excluded because it is superseded by the two separate measures for cleanliness of the inside and outside of trains).

The full results from this multivariate analysis are shown at Appendix A. The Quality Assurance checklist at Appendix H provides details of any factors that have significantly increased or decreased in deduced importance.

8. Glossary of terms

Certain terms are used throughout the NRPS and these are defined here, for convenience.

Central London stations:

Blackfriars	Kings Cross	Paddington
Cannon Street	Liverpool Street	St Pancras
Charing Cross	London Bridge	Victoria
City Thameslink	Marylebone	Waterloo
Euston	Moorgate	Waterloo East
Fenchurch Street		

Journey purpose provides a categorisation of passenger journeys. Journeys are defined as Commuter, Business or Leisure, using the codes at Appendix E.

Peak journeys for journeys in London and the South East are defined as weekday journeys for which the train terminates (or passes through for Govia Thameslink Railway) at a Central London station before 10:00 or departs from a Central London Station between 16:00 and 19:00

Shift is a period during which a fieldworker distributes questionnaires to rail passengers

TOC is a Train Operating Company

TOC type classifies each TOC into one of three types, currently as follows:

London & South East	Long Distance	Regional
c2c	CrossCountry	Transport for Wales
Chiltern Railways	London North East Railway	Merseyrail
Gatwick Express	East Midlands Railway	Northern
Great Northern	TransPennine Express	ScotRail
Great Western Railway	Virgin Trains	
Greater Anglia		
West Midlands Trains		
London Overground		
South Western Railway		
Southeastern		
Southern		
TfL Rail		
Thameslink		

TOC building block is a subset of a TOC for which an independent sample is drawn and for which weighting is applied. Using building blocks allows TOCs to align NRPS data with operational data for sub divisions of their network and also allows new franchise geographies to be assessed before a new franchise commences. All building blocks are now route based (apart from Northern from Autumn 2018) although prior to Autumn 2016 (Wave 35) a few TOCs used stations to define their building blocks.

Building blocks are being increasingly used to benchmark performance against the (weighted) average for a building block genre e.g. comparing Stansted Express to the average of the airport services genre. There are seven building block genres to which all building blocks have been assigned:

- Short commute
- Long commute
- High speed
- Long distance
- Inter urban
- Rural
- Airport services

Appendix F provides the definition of the genre allocated to each building block.

9. Deliverables

A wide range of reports is produced from the NRPS data each wave. The key reports are defined below:

Report	Produced for
At a glance report	Short summary reports showing headline results
Full report *(formerly known as Summary Report)*	A report providing trend data for each TOC by wave which is used to generate the Transport Focus Main NRPS report
Multivariate analysis	Key drivers nationally, for each TOC type and each TOC and for each building block
Rankings report	Results since wave 10, showing satisfaction score for each TOC by factor, significant changes since one year earlier, national rank and rank in TOC type
Stakeholder report *(formerly known as Consultees Report)*	A report of summary results produced for all TOCs and a range of Stakeholders
Network Rail stations report	Percentage of passengers satisfied by each main factor for last ten waves for all Network Rail managed stations covered by NRPS during that time period
Non Network Rail stations report	Percentage of passengers satisfied by each main factor for last ten waves for all Non Network Rail managed stations covered by NRPS during that time period
TOC Reports	Produced for each TOC, virtual TOC and PTE area
Main Report	The priority report housed on the main Transport Focus data hub summarising performance across all TOCs
Technical Report	This report, outlining the key elements of NRPS
Tables	Summary analysis for every question in the questionnaire for each TOC and nationally

All reports are supplied electronically to Transport Focus at the end of each wave. The TOC Reports and Stakeholder Report are distributed electronically to a distribution list mandated by Transport Focus via a secure FTP site. SPSS files are also available.

In addition, access to the raw data itself and to the verbatim comments written in by respondents in response to open-ended questions are available online. Please see the Transport Focus website or at http://www.railpassengerdata.org.uk for further details of this online system. SPSS files are also available. Another online system called the 'Data Hub' gives users the opportunity to do their own NRPS analysis (including some quite detailed analysis). Access is available at: https://www.transportfocus.org.uk/ . Analysis of Transport Focus's other tracker surveys is also possible using the Data Hub.

10. KPIs

The new contract from Autumn 2007 onwards suggested monitoring Key Performance Indicators. We have included here performance against the target sample sizes for each train company for the Autumn 2019 wave (showing the number of used questionnaires for each TOC).

Table 24: Spring 2020, Wave 42 achieved interviews by TOC

Train Operating Company	Target	Sample size achieved
Avanti West Coast	1,000	641
c2c	1,000	619
Chiltern Railways	1,000	818
CrossCountry	1,200	932
East Midlands Railway	1,000	637
Gatwick Express	500	416
Grand Central*	500	395
Great Northern	500	314
Great Western Railway	1,500	1032
Greater Anglia	1,300	1016
Heathrow Express*	500	533
Hull Trains*	500	427
London North Eastern Railway	1,000	753
London Overground	1,600	1244
Merseyrail	700	525
Northern	1,400	1004
ScotRail	1,300	1025
South Western Railway (inc Island Line)	2,000	1471
Southeastern	1,500	1345
Southern	1,300	899
Tfl Rail	1,000	825
Thameslink	1,000	852
TransPennine Express	1,000	668
Transport for Wales	1,000	781
West Midlands Trains	1,000	675
Total	**26,300**	**19,847**

TOCs marked * are non-franchised operators included in NRPS, but are not part of many of the published results. **Heathrow Connect has now become part of the TfL Rail network in preparation for the Elizabeth Line.

As noted previously, the early curtailment of fieldwork due to the Coronavirus pandemic has resulted in an overall sample size some 25% below target.

11. Appendices

12.1 Appendix A: Multivariate Analysis

Results of multivariate analysis – drivers of overall journey satisfaction

Key drivers analysis is undertaken to identify which of the criteria measured best explain overall satisfaction and dissatisfaction with the overall journey experience. The technique used is Pairwise regression, using a Stepwise method. This approach is favoured over others as it is designed to deal with cases where data is missing for respondents. As the NRPS is a self-completion survey, respondents are not required to answer every question and hence for most respondents the data set is incomplete.

The analysis is performed at the end of every wave, but to ensure a robust base of respondents at TOC and Building Block level, two waves of data are amalgamated. Spring 2020 analysis was conducted on the combined Spring 2020 and Autumn 2019 data sets.

The approach itself is designed to measure what explains the variance in the scores given for the dependent variable. In this case the dependent variable is overall satisfaction with journey. Regression analysis produces coefficients and these are then translated into a percentage score for those attributes which help to explain the variance. The inputs (attributes) are the questions relating to the station, train and delay ratings. The analysis is run separately to identify the attributes that explain satisfaction and those that explain dissatisfaction. For the drivers of satisfaction, the dependent variable is defined as those who are either 'very' or 'fairly' satisfied with their journey and the input data is the top-two box scores for the various attributes. Conversely, the dependent variable for the drivers of dissatisfaction is defined as those who are either 'fairly' or 'very' dissatisfied with their journey and the input data is the bottom-two scores for the station, train and delay attributes.

The outputs are reported as percentages and the following tables detail which attributes best explain the overall variance in journey satisfaction. Just over a third (37%) of the variation in overall passenger satisfaction is explained by the rating on punctuality/reliability, making this by far the most important driver of overall satisfaction. Just under half (49%) of the variation in overall dissatisfaction is explained by dissatisfaction with how the train company handled any delays, making this by far the most important driver of trip dissatisfaction.

Train factors remain far more important drivers of passenger satisfaction than station factors.

Where a figure is shown as 0%, this means the factor is a significant driver of overall satisfaction but the percentage variance is below 0.5% (but still above zero).

Where no figure is shown, this means the factor does not contribute to driving overall trip satisfaction.

The results are very consistent with those shown for the previous wave, in spite of the reduction in sample size in the Spring 2020 wave; this confirms that at the national level, the early curtailment of fieldwork appears to have had only a minor impact on results.

Table 25: Drivers of overall journey satisfaction – w41/42 combined

Station questions	
Ticket buying facilities	1%
Provision of information about train times/platforms	2%
Upkeep/repair of the station buildings/platforms	
Cleanliness of the station	0%
Toilet facilities at the station	
Attitudes and helpfulness of the staff	
Connections with other forms of public transport e.g. bus, tube, tram, taxi etc.	1%
Facilities for car parking	0%
Overall station environment	2%
Your personal security whilst using that station	
Availability of staff at the station	0%
shelter facilities	
Availability of seating	
Choice of shops/eating/drinking facilities available	
Availability of Wi-Fi	
Overall satisfaction with how request was handled	
Train questions	
Frequency of the trains on that route	11%
Punctuality/reliability (i.e. the train arriving/departing on time)	37%
Length of time the journey was scheduled to take (speed)	7%
Connections with other train services	
Value for money for the price of your ticket	2%
Up keep and repair of the train	2%
Provision of information during the journey	6%
Helpfulness and attitude of staff on train	
Space for luggage	0%
Toilet facilities	
Comfort of the seats	5%
Step or gap between the train and the platform	1%
Your personal security whilst on board the train	0%
Availability of staff on the train	
Cleanliness of the inside	14%
Cleanliness of the outside	0%
Rating of how train company dealt with these delays	2%
Level of crowding	7%
Reliability of the Internet connection	
Availability of power sockets	

Table 26: Drivers of overall journey dissatisfaction – w41/42 combined

Station questions	
Ticket buying facilities	0%
Provision of information about train times/platforms	1%
Upkeep/repair of the station buildings/platforms	
Cleanliness of the station	
Toilet facilities at the station	
Attitudes and helpfulness of the staff	
Connections with other forms of public transport e.g. bus, tube, tram, taxi etc.	0%
Facilities for car parking	0%
Overall station environment	
Your personal security whilst using that station	3%
Availability of staff at the station	
Shelter facilities	
Availability of seating	
Choice of shops/eating/drinking facilities available	
Availability of Wi-Fi	1%
Overall satisfaction with how request was handled	2%
Train questions	
Frequency of the trains on that route	5%
Punctuality/reliability (i.e. the train arriving/departing on time)	10%
Length of time the journey was scheduled to take (speed)	7%
Connections with other train services	3%
Value for money for the price of your ticket	1%
Up keep and repair of the train	0%
Provision of information during the journey	3%
Helpfulness and attitude of staff on train	0%
Space for luggage	1%
Toilet facilities	
Comfort of the seats	1%
Step or gap between the train and the platform	
Your personal security whilst on board the train	0%
Availability of staff on the train	
Cleanliness of the inside	3%
Cleanliness of the outside	
Rating of how train company dealt with these delays	49%
Level of crowding	11%
Reliability of the Internet connection	
Availability of power sockets	

12.2 Appendix B: Questionnaires

Two versions of the questionnaire were administered, interviewers distributed them alternately throughout their shifts. The core of the questionnaire was identical with only a small sub-section varying between the two versions. Below is a full copy of version A plus the sub-section of questions from version B.

Spring 2020

National Rail Passenger Survey

Thank you for agreeing to take part in our survey. Transport Focus is the official, independent consumer watchdog that represents rail, bus, and tram passengers. To help us represent the views of passengers in your area we would appreciate a little of your time to complete this survey. It asks about the rail journey you made when given this questionnaire. **The rail industry and governments pay close attention to the survey's results which provide Transport Focus with the evidence to seek improvements on behalf of passengers.**

- Please comment on National Rail services only. Do not comment on Underground or tram services.
- To answer the questions please tick the box next to the answer(s) that apply or write your answer in the space provided. Unless the question allows you to tick several answers please just tick one box per question.
- When you have completed your questionnaire please return it to us in the envelope provided.

1 Your journey today

The journey you were making after being given this questionnaire at Glasgow Central station

Q1a **Please fill in the scheduled departure time of the train you caught from Glasgow Central station**
Please use the 24 hour clock e.g. 17:25

☐☐ : ☐☐

Q1b **Which train company was operating the train that you boarded at Glasgow Central station?**

- London North Eastern Railway ☐
- Avanti West Coast (formally Virgin Trains) ☐
- CrossCountry ☐
- *Other: Please write in* ☐
- ScotRail ☐
- TransPennine Express ☐
- Northern ☐
- Don't know ☐

Q1c **Did this journey involve you travelling on a rail replacement bus or coach service today?**

- Yes ☐
- No ☐

Q2 **At which station did you get off this train?**
Please write in the name of the station

Continued overleaf

Interviewer use only D D M M 2 0

0 0 4 6 0 4 0 5 0 0 1 A-S

Your opinion counts! transportfocus

1

Q3 **What was the main purpose of the trip you were making when given this questionnaire?**

Daily commuting to/from work	☐	On personal business (job interview, dentist etc.)	☐
Less regular commuting to/from work	☐	Visiting friends or relatives	☐
Daily commuting for education (to/from college/school/university)	☐	Shopping trip	☐
Less regular commuting for education (to/from college/school/university)	☐	Travel to/from holiday	☐
On company business (or own if self-employed)	☐	A day out	☐
		Sport	☐
		Other leisure trip	☐

Q4 **What type of ticket did you use for your journey from Glasgow Central?**
(Note: type of ticket is often shown at the top left of your ticket)

Anytime Single/Return	☐	Annual Season Ticket (including Travelcard/ Travelcard on Oyster)	☐
Anytime Day Single/Return	☐	Special promotion ticket (e.g. rover ticket)	☐
Off-Peak/Super Off-Peak Single/Return	☐	Rail Staff Pass/Privilege Ticket/ Police Concession	☐
Off-Peak Day/Super Off-Peak Day Single/Return	☐	Free travel pass (e.g. Freedom pass)	☐
Advance	☐	Oyster Pay As you Go	☐
Day Travelcard	☐		
Weekly or monthly Season Ticket (including Travelcard/Travelcard on Oyster)	☐	*Other: Please write in*	

2 Your opinion of the station where you were given this questionnaire

Q5 **How would you rate Glasgow Central station for:**

	Very good	Fairly good	Neither good nor poor	Fairly poor	Very poor	Did not use/no opinion
Ticket buying facilities (if you bought at that station)	☐	☐	☐	☐	☐	☐
Provision of information about train times/platforms	☐	☐	☐	☐	☐	☐
Upkeep/repair of the station buildings/platforms	☐	☐	☐	☐	☐	☐
Cleanliness of the station	☐	☐	☐	☐	☐	☐
Toilet facilities at the station	☐	☐	☐	☐	☐	☐
Availability of staff at the station	☐	☐	☐	☐	☐	☐
Attitudes and helpfulness of the staff	☐	☐	☐	☐	☐	☐
Connections with other forms of public transport (e.g. bus, tube, tram, taxi, etc.)	☐	☐	☐	☐	☐	☐
Facilities for car parking	☐	☐	☐	☐	☐	☐
Facilities for bicycle parking	☐	☐	☐	☐	☐	☐
Your personal security whilst using that station	☐	☐	☐	☐	☐	☐
Overall station environment	☐	☐	☐	☐	☐	☐
Shelter facilities	☐	☐	☐	☐	☐	☐
Availability of seating	☐	☐	☐	☐	☐	☐
Choice of shops/eating/drinking facilities available	☐	☐	☐	☐	☐	☐
Availability of Wi-Fi	☐	☐	☐	☐	☐	☐

Q6 **While at Glasgow Central station, did you ask staff for help or information?**
Please tick all that apply

Yes - asked for help	☐	**Go to Q7**
Yes - asked for information	☐	**Go to Q7**
No - couldn't find anyone to ask	☐	**Go to Q8**
No - didn't need help/information	☐	**Go to Q8**

Q7 **Overall, how satisfied were you with the way your request was handled?**

Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Don't know/no opinion
☐	☐	☐	☐	☐	☐

Q8 **Overall, how satisfied were you with Glasgow Central station?**

Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Don't know/no opinion
☐	☐	☐	☐	☐	☐

3 Your opinion of the train that you caught when you were given this questionnaire

Q9 Based on your experience on that journey, how satisfied were you with:

	Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Don't know/no opinion
Frequency of the trains on that route	☐	☐	☐	☐	☐	☐
Punctuality/reliability of the train (i.e. the train arriving/departing on time)	☐	☐	☐	☐	☐	☐
Length of time the journey was scheduled to take	☐	☐	☐	☐	☐	☐
Level of crowding	☐	☐	☐	☐	☐	☐
Connections with other train services	☐	☐	☐	☐	☐	☐
Value for money of the price of your ticket	☐	☐	☐	☐	☐	☐

Q10 How would you rate the train you boarded for that journey in terms of:

	Very good	Fairly good	Neither good nor poor	Fairly poor	Very poor	Did not use/no opinion
Cleanliness of the inside of the train	☐	☐	☐	☐	☐	☐
Cleanliness of the outside of the train	☐	☐	☐	☐	☐	☐
Upkeep and repair (condition of seats, walls, tables, etc.)	☐	☐	☐	☐	☐	☐
Provision of information during the journey	☐	☐	☐	☐	☐	☐
Availability of staff on the train	☐	☐	☐	☐	☐	☐
Helpfulness and attitude of staff on the train	☐	☐	☐	☐	☐	☐
Space for luggage	☐	☐	☐	☐	☐	☐
Comfort of the seats	☐	☐	☐	☐	☐	☐
Space for bicycles	☐	☐	☐	☐	☐	☐
The step or gap between the train and the platform	☐	☐	☐	☐	☐	☐
Your personal security whilst on board the train	☐	☐	☐	☐	☐	☐
Toilet facilities on the train	☐	☐	☐	☐	☐	☐
Reliability of the Internet connection	☐	☐	☐	☐	☐	☐
Availability of power sockets	☐	☐	☐	☐	☐	☐

Q11 Overall, how satisfied were you with the train you boarded for your journey?

Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Don't know/no opinion
☐	☐	☐	☐	☐	☐

Q12 Did you get a seat on the train?

- Yes - for all of the journey ☐
- Yes - for part of the journey ☐
- No - but I was happy to stand ☐
- No - but I would have liked a seat ☐

Q13 Did you experience any delay either on this train or because the train you had planned to catch at Glasgow Central was cancelled?

- No delay ☐ **Go to Q16**
- Up to 5 minutes delay ☐ **Go to Q14**
- 6-10 minutes delay ☐ **Go to Q14**
- 11-15 minutes delay ☐ **Go to Q14**
- 16-20 minutes delay ☐ **Go to Q14**
- 21-30 minutes delay ☐ **Go to Q14**
- 31-60 minutes delay ☐ **Go to Q14**
- Over 60 minutes delay ☐ **Go to Q14**

Q14 How well do you think the train company dealt with this delay?

Very well	Fairly well	Neither well nor poorly	Fairly poorly	Very poorly	Don't know/no opinion
☐	☐	☐	☐	☐	☐

Q15 **How well do you rate the train company for each of the following, in relation to the delay that occurred?**

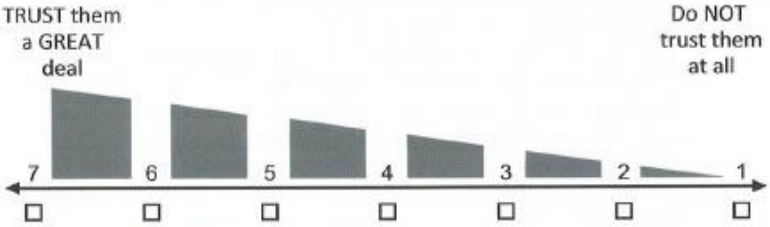
	Very well	Fairly well	Neither well nor poorly	Fairly poorly	Very poorly	Don't know/no opinion
The amount of information provided about the delay	☐	☐	☐	☐	☐	☐
The accuracy of information given about the delay	☐	☐	☐	☐	☐	☐
The usefulness of the information	☐	☐	☐	☐	☐	☐
The speed with which information was provided	☐	☐	☐	☐	☐	☐
The time taken to resolve the problem	☐	☐	☐	☐	☐	☐
The availability of alternative transport if the train service could not continue	☐	☐	☐	☐	☐	☐

4 Your overall opinion of your journey today

Q16 **Taking into account Glasgow Central station where you boarded the train and the actual train travelled on after being given this questionnaire, how satisfied were you with your journey today?**

Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Fairly dissatisfied	Very dissatisfied	Don't know/no opinion
☐	☐	☐	☐	☐	☐

Q17 **All things considered and on balance, how much do you trust the train company that operated the train you travelled on today?**
Please select one number only



Q18 **Did other passengers' behaviour give you cause to worry or make you feel uncomfortable during your journey?** *Please tick all that apply*

Yes - at the station	☐	**Go to Q19**
Yes - on the train	☐	**Go to Q19**
No	☐	**Go to Q20**

Q19 **Which of the following were the reason(s) for this?**
Please tick all that apply

	At the station	On the train
Passengers drinking/under the influence of alcohol	☐	☐
Passengers taking/under the influence of drugs	☐	☐
Abusive or threatening behaviour	☐	☐
Rowdy behaviour	☐	☐
Feet on seats	☐	☐
Music being played loudly	☐	☐
Loud use of mobile phones	☐	☐
Smoking	☐	☐
Graffiti or vandalism	☐	☐
Saw an act of vandalism/violence	☐	☐
Other	*Please write in*	*Please write in*

Q20 **Please use the space below for any further comments you would like to make about your trip today or the rail service generally.**

4

5 Station Access

Q21 **Which methods of transport did you use to get to Glasgow Central station?**
Please tick all that apply

Another train (National Rail service)	☐	Tram/Metro	☐
On foot/walked	☐	Underground train	☐
Bicycle (parked at or near station)	☐	Taxi	☐
Bicycle (taken on to train)	☐	Car parked at or near station	☐
Motorbike	☐	Car - dropped off	☐
Bus/coach	☐	Air/sea	☐

Other: Please write in

Q22 **Did you continue your journey by train after getting off at this station?**
Please remember not to include the Underground/Metro/trams

Yes	☐	**Go to Q23**
No	☐	**Go to Q25**

Q23 **Please write in the name of your final destination station.**

Q24 **Please write in the names of any other stations at which you changed trains before reaching your final destination.**

Q25 **Which methods of transport did you use to get from the station when you finished your train journey?**
Please tick all that apply

Another train (National Rail service)	☐	Tram/Metro	☐
On foot/walked	☐	Underground train	☐
Bicycle (parked at or near station)	☐	Taxi	☐
Bicycle (taken on to train)	☐	Car parked at or near station	☐
Motorbike	☐	Car - picked up	☐
Bus/coach	☐	Air/sea	☐

Other: Please write in

Q26 **Were you on your outward or return journey when you were given a questionnaire?**

Outward	☐
Return	☐
One way trip only	☐

Q27 **How often do you make the train journey that you were on today when handed this questionnaire?**

5 or more times a week ☐
3 or 4 times a week ☐
Once or twice a week ☐
1 or 2 times a month ☐
Once every 2-3 months ☐
Once every 6 months ☐
Less often ☐
Never/first time today ☐

Q28 **Thinking about the whole journey you were making, of which the train journey was a part, how long did the whole journey take from the time you started out until the time you got to your final destination?**

Less than 30 minutes ☐
30 - 59 minutes ☐
1 hour - 1 hour 59 minutes ☐
2 hours - 2 hours 59 minutes ☐
3 hours - 3 hours 59 minutes ☐
4 hours or more ☐

Q29 **Did you have an alternative means of making the journey you were on today if you were to choose not to take the train for any reason?**
Please tick all that apply

No alternative means available ☐
Yes - on foot/walk ☐
Yes - car ☐
Yes - bicycle ☐
Yes - motorbike ☐
Yes - bus/coach ☐
Yes - tram/Metro ☐
Yes - Underground ☐
Yes - taxi ☐
Yes - air/sea ☐

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6 A little bit about you

So that we can be sure we've got the views of a representative cross-section of passengers and analyse the findings by different passenger types

Q30 Your age?

16 - 18	☐	55 - 59	☐
19 - 25	☐	60 - 64	☐
26 - 34	☐	65 - 69	☐
35 - 44	☐	70 - 80	☐
45 - 54	☐	81+	☐

Q31 Are you:

Male	☐	Female	☐
Prefer another term	☐		

Q32 To which of these ethnic groups do you consider you belong?

- White ☐
- Mixed/multiple ethnic groups ☐
- Asian or Asian British ☐
- Black, African/Caribbean or Black British ☐
- Chinese ☐
- Arab ☐
- Other ethnic group ☐

Q33 Are you affected by any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?
Please tick all that apply

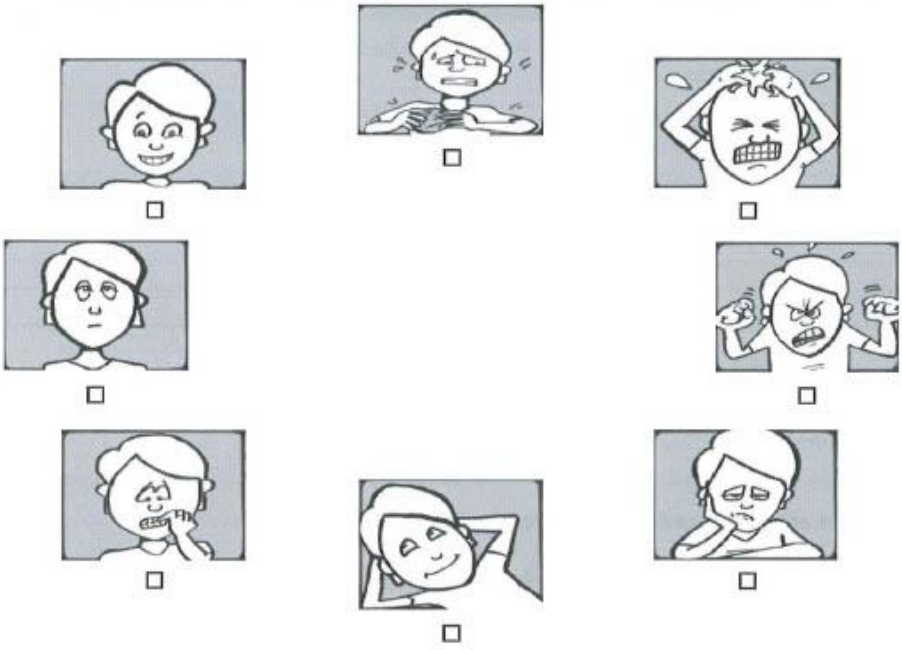
- No: None ☐
- Yes: Vision (e.g. blindness or partial sight) ☐
- Yes: Hearing (e.g. deafness or partial hearing) ☐
- Yes: Mobility (e.g. only able to walk short distances or difficulty climbing stairs) ☐
- Yes: Dexterity (e.g. difficulty lifting and carrying objects or using a keyboard) ☐
- Yes: Learning or understanding or concentrating ☐
- Yes: Memory ☐
- Yes: Mental health ☐
- Yes: Stamina or breathing or fatigue ☐
- Yes: Socially or behaviourally (eg associated with autism, attention deficit disorder or Asperger's syndrome) ☐

Other: Please write in

Q34 Were you travelling with:
Please tick all that apply

- Heavy/bulky luggage/other large items ☐
- A pushchair/buggy/pram ☐
- A folding bicycle ☐
- A non-folding bicycle ☐
- A dog ☐
- A helper ☐
- A mobility scooter ☐
- A wheelchair ☐
- None of the above ☐

Q35 **And finally, which one of these images best captures how you feel about your journey today?**



Images © Transport Focus

THANK YOU! You have made your opinion count ...

If you would be happy to participate in future research projects about the transport industry for Transport Focus please complete the contact details below:

The information that you have provided on this questionnaire will be securely held and processed by Watermelon Research on behalf of Transport Focus. Any personal data provided will be deleted from our systems after a 6 month period to allow the completion of any quality checks. Only your name and email address will be passed on to Transport Focus. No responses provided on this questionnaire will be appended to your personal details. Transport Focus will contact you within 6 months to seek your consent for future research.

Your personal data will not be passed on to a third party. You can view our privacy statement and security processes at www.watermelonresearch.com/gdpr

All research is conducted in accordance with Market Research Society guidelines www.mrs.org.uk

If you have any queries about this survey or how your data will be used please contact Sarah Champion at Watermelon Research on 01233 648460

Name:

Email address:

Please return the questionnaire as soon as possible in the envelope provided or use the following Freepost address:

WATERMELON

Freepost Plus RTKL-ZYTR-HTZK
National Rail Passenger Survey
Watermelon Research
3 Henwood
Henwood Industrial Estate
ASHFORD
TN24 8FL

transportfocus

Version B supplement

5 Fares and ticketing

Q21 How did you check the times of the trains for your journey today?

I did not check as I already knew the times	☐	Go to Q23
I did not check, I just turned up at the station	☐	Go to Q23
I looked at a printed timetable that I already had	☐	Go to Q23
I went to the station/a travel agent in advance	☐	Go to Q23
I phoned for information	☐	Go to Q22
I checked on line on a computer	☐	Go to Q22
I checked on line on my phone	☐	Go to Q22
I used an App	☐	Go to Q22

Other: Please write in — Go to Q22

Q22 Which organisation did you use to check the train times?

National Rail Enquiries (NRE)	☐
The operator of the train I boarded when given this questionnaire	☐
Another train operator	☐
A third party ticket seller (e.g. trainline, Red Spotted Hanky)	☐
A third party travel information provider (e.g. Traveline, local council)	☐

Other: Please write in

Q23 When did you buy your ticket for your journey today?

Today	☐	Go to Q24
In last week	☐	Go to Q24
In last fortnight	☐	Go to Q24
In last month	☐	Go to Q24
In last two months	☐	Go to Q24
More than two months ago	☐	Go to Q24
Used a season ticket I already had	☐	Go to Q25
Used a free travel pass I already had	☐	Go to Q25

Q24 Where did you buy your ticket for your journey today?

From a station ticket window	☐
From a ticket machine at the station/elsewhere	☐
From a member of staff on the train	☐
From a member of staff at a station	☐
From ticket sales staff on the phone	☐
From the train company's website	☐
From another company's website (incl. other train companies, third parties e.g. Trainline)	☐
Via the train company's App	☐
Via another company's App	☐
Ticket was organised for me	☐
Used Oyster, smartcard or contactless	☐

Other: Please write in

Q27 **How often do you make the train journey that you were on today when handed this questionnaire?**

5 or more times a week ☐
3 or 4 times a week ☐
Once or twice a week ☐
1 or 2 times a month ☐
Once every 2-3 months ☐
Once every 6 months ☐
Less often ☐
Never/first time today ☐

Q28 **Thinking about the whole journey you were making, of which the train journey was a part, how long did the whole journey take from the time you started out until the time you got to your final destination?**

Less than 30 minutes ☐
30 - 59 minutes ☐
1 hour - 1 hour 59 minutes ☐
2 hours - 2 hours 59 minutes ☐
3 hours - 3 hours 59 minutes ☐
4 hours or more ☐

Q29 **Did you have an alternative means of making the journey you were on today if you were to choose not to take the train for any reason?**
Please tick all that apply

No alternative means available ☐
Yes - on foot/walk ☐
Yes - car ☐
Yes - bicycle ☐
Yes - motorbike ☐
Yes - bus/coach ☐
Yes - tram/Metro ☐
Yes - Underground ☐
Yes - taxi ☐
Yes - air/sea ☐

12.3 Appendix C: Definition of PTE areas

Stations in area: TfGM

Journeys that start and end at one of these stations:

ALTRINCHAM	GATLEY	MIDDLEWOOD
APPLEY BRIDGE	GLOSSOP	MILLS HILL
ARDWICK	GLAZEBROOK	MOORSIDE
ASHBURYS	GODLEY	MOSES GATE
ASHTON-UNDER-LYNE	GORTON	MOSSLEY (GREATER MANCHESTER)
ATHERTON	GREENFIELD	MOSTON
BELLE VUE	GUIDE BRIDGE	NAVIGATION ROAD
BLACKROD	HADFIELD	NEWTON FOR HYDE
BOLTON	HAG FOLD	ORRELL
BRAMHALL	HALE	PATRICROFT
BREDBURY	HALL I' TH' WOOD	PEMBERTON
BRINNINGTON	HATTERSLEY	REDDISH NORTH
BROADBOTTOM	HAZEL GROVE	REDDISH SOUTH
BROMLEY CROSS	HEALD GREEN	ROCHDALE
BRYN	HEATON CHAPEL	ROMILEY
BURNAGE	HINDLEY	ROSE HILL MARPLE
CASTLETON	HORWICH PARKWAY	RYDER BROW
CHASSEN ROAD	HUMPHREY PARK	SALFORD CENTRAL
CHEADLE HULME	HYDE CENTRAL	SALFORD CRESCENT
CLIFTON	HYDE NORTH	SMITHY BRIDGE
DAISY HILL	INCE (MANCHESTER)	STALYBRIDGE
DAVENPORT	IRLAM	STOCKPORT
DEANSGATE	KEARSLEY	STRINES
DENTON	LEVENSHULME	SWINTON (LANCASHIRE)
DINTING	LITTLEBOROUGH	TRAFFORD PARK
EAST DIDSBURY	LOSTOCK	URMSTON
ECCLES	MANCHESTER AIRPORT	WALKDEN
FAIRFIELD	MANCHESTER OXFORD ROAD	WESTHOUGHTON
FARNWORTH	MANCHESTER PICCADILLY	WIGAN NORTH WESTERN
FLIXTON	MANCHESTER VICTORIA	WIGAN WALLGATE
FLOWERY FIELD	MARPLE	WOODLEY
GATHURST	MAULDETH ROAD	WOODSMOOR

Stations in area: Merseytravel

Journeys that start and end at one of these stations:

AIGBURTH	GREEN LANE	OLD ROAN
AINSDALE	HALEWOOD	ORRELL PARK
AINTREE	HALL ROAD	PORT SUNLIGHT
BANK HALL	HESWALL	PRESCOT
BEBINGTON	HIGHTOWN	RAINFORD
BIDSTON	HILLSIDE	RAINHILL
BIRKDALE	HOOTON	RICE LANE
BIRKENHEAD CENTRAL	HOUGH GREEN	ROBY
BIRKENHEAD HAMILTON SQUARE	HOYLAKE	ROCK FERRY
BIRKENHEAD NORTH	HUNTS CROSS	SANDHILLS
BIRKENHEAD PARK	HUYTON	SEAFORTH AND LITHERLAND
BLUNDELLSANDS AND CROSBY	KIRKBY	SOUTHPORT
BOOTLE NEW STRAND	KIRKDALE	SPITAL
BOOTLE ORIEL ROAD	LEA GREEN	ST HELENS CENTRAL
BROAD GREEN	LEASOWE	ST HELENS JUNCTION
BROMBOROUGH	LIVERPOOL CENTRAL	ST MICHAELS
BROMBOROUGH RAKE	LIVERPOOL JAMES STREET	THATTO HEATH
BRUNSWICK	LIVERPOOL LIME STREET	UPTON
CONWAY PARK	LIVERPOOL SOUTH PARKWAY	WALLASEY GROVE ROAD
CRESSINGTON	MAGHULL	WALLASEY VILLAGE
EARLESTOWN	MANOR ROAD	WALTON (MERSEYSIDE)
EASTHAM RAKE	MEOLS	WATERLOO (MERSEYSIDE)
ECCLESTON PARK	MEOLS COP	WAVERTREE TECHNOLOGY PARK
EDGE HILL	MOORFIELDS	WEST ALLERTON
FAZAKERLEY	MORETON (MERSEYSIDE)	WEST KIRBY
FORMBY	MOSSLEY HILL	WHISTON
FRESHFIELD	NEW BRIGHTON	
GARSWOOD	NEWTON-LE-WILLOWS	

Stations in area: Nexus PTE

Journeys that start at one of these stations:

HEWORTH
NEWCASTLE
SEABURN
SUNDERLAND

Stations in area: SEWTA

Journeys that start and end at one of these stations:

ABER	FERNHILL	PONTYPRIDD
ABERCYNON	GARTH (MID GLAMORGAN)	PORTH
ABERDARE	GILFACH FARGOED	PYLE
ABERGAVENNY	GRANGETOWN (GLAMORGAN)	QUAKERS YARD
BARGOED	HEATH HIGH LEVEL	RADYR
BARRY	HEATH LOW LEVEL	RHIWBINA
BARRY DOCKS	HENGOED	RHOOSE (CARDIFF INTERNATIONAL AIRPORT)
BARRY ISLAND	LISVANE AND THORNHILL	RHYMNEY
BIRCHGROVE	LLANBRADACH	RISCA AND PONTYMISTER
BRIDGEND	LLANDAF	ROGERSTONE
BRITHDIR	LLANHARRAN	SARN
CADOXTON	LLANHILLETH	SEVERN TUNNEL JUNCTION
CAERPHILLY	LLANISHEN	TAFFS WELL
CALDICOT	LLANTWIT MAJOR	TIR-PHIL
CARDIFF BAY	LLWYNYPIA	TON PENTRE
CARDIFF CENTRAL	MAESTEG	TONDU
CARDIFF QUEEN STREET	MAESTEG EWENNY ROAD	TONYPANDY
CATHAYS	MERTHYR TYDFIL	TREFFOREST
CHEPSTOW	MERTHYR VALE	TREFFOREST ESTATE
COGAN	MOUNTAIN ASH	TREHAFOD
CORYTON	NEWBRIDGE	TREHERBERT
CROSSKEYS	NEWPORT (SOUTH WALES)	TREORCHY
CWMBACH	NINIAN PARK	TROED-Y-RHIW
CWMBRAN	PENARTH	TY GLAS
DANESCOURT	PENCOED	WAUN-GRON PARK
DINAS POWYS	PENGAM	WHITCHURCH
DINAS RHONDDA	PENRHIWCEIBER	WILDMILL
DINGLE ROAD	PENTRE-BACH	YNYSWEN
EASTBROOK	PONTLOTTYN	YSTRAD MYNACH
EBBW VALE PARKWAY	PONTYCLUN	YSTRAD RHONDDA
FAIRWATER	PONTYPOOL AND NEW INN	

Stations in area: Strathclyde PTE

Journeys that start and end at one of these stations:

AIRBLES	CLYDEBANK	HAWKHEAD	PAISLEY GILMOUR St
AIRDRIE	COATBRIDGE CENTRAL	HELENSBURGH CENTRAL	PAISLEY ST JAMES
ALEXANDRA PARADE	COATBRIDGE SUNNYSIDE	HIGH STREET GLASGOW	PARTICK
ALEXANDRIA	COATDYKE	HILLFOOT	PATTERTON
ANDERSTON	CORKERHILL	HILLINGTON EAST	POLLOKSHAWS EAST
ANNIESLAND	CRAIGENDORAN	HILLINGTON WEST	POLLOKSHAWS WEST
ARDROSSAN HARBOUR	CROFTFOOT	HOLYTOWN	POLLOKSHIELDS EAST
ARDROSSAN SOUTH BEACH	CROOKSTON	HOWWOOD	POLLOKSHIELDS WEST
ARDROSSAN TOWN	CROSSHILL	HYNDLAND	PORT GLASGOW
ARGYLE STREET	CROSSMYLOOF	IBM	POSSILPARK & PARKHOUSE
ASHFIELD	CROY	INVERKIP	PRESTWICK INTERNATIONAL AIRPORT
AUCHINLECK	CUMBERNAULD	IRVINE	PRESTWICK TOWN
AYR	DALMARNOCK	JOHNSTONE	PRIESTHILL AND DARNLEY
BAILLIESTON	DALMUIR	JORDANHILL	QUEENS PARK (GLASGOW)
BALLOCH	DALREOCH	KENNISHEAD	RENTON
BARASSIE	DALRY	KILMARNOCK	RUTHERGLEN
BARGEDDIE	DRUMCHAPEL	KILMAURS	SALTCOATS
BARRHEAD	DRUMFROCHAR	KILPATRICK	SCOTSTOUNHILL
BARRHILL	DRUMGELLOCH	KILWINNING	SHAWLANDS
BEARSDEN	DRUMRY	KINGS PARK	SHETTLESTON
BELLGROVE	DUKE STREET	KIRKHILL	SHIELDMUIR
BELLSHILL	DUMBARTON CENTRAL	KIRKWOOD	SHOTTS
BISHOPBRIGGS	DUMBARTON EAST	LANARK	SINGER
BISHOPTON	DUMBRECK	LANGBANK	SPRINGBURN
BLAIRHILL	DUNLOP	LANGSIDE	STEPPS
BLANTYRE	EAST KILBRIDE	LARGS	STEVENSTON
BOGSTON	EASTERHOUSE	LARKHALL	STEWARTON
BOWLING	EXHIBITION CENTRE GLASGOW	LENZIE	SUMMERSTON
BRANCHTON	FAIRLIE	LOCHWINNOCH	THORNLIEBANK
BRIDGETON	FORT MATILDA	MARYHILL	THORNTONHALL
BURNSIDE	GARROWHILL	MAXWELL PARK	TROON
BUSBY	GARSCADDEN	MAYBOLE	UDDINGSTON
CAMBUSLANG	GIFFNOCK	MERRYTON	WEMYSS BAY
CARDONALD	GILSHOCHILL	MILLIKEN PARK	WEST KILBRIDE
CARDROSS	GIRVAN	MILNGAVIE	WESTERTON

CARFIN	GLASGOW CENTRAL	MOSSPARK	WHIFFLET
CARLUKE	GLASGOW QUEEN STREET	MOTHERWELL	WHINHILL
CARMYLE	GLENGARNOCK	MOUNT FLORIDA	WHITECRAIGS
CARNTYNE	GOUROCK	MOUNT VERNON	WILLIAMWOOD
CARSTAIRS	GREENFAULDS	MUIREND	WISHAW
CARTSDYKE	GREENOCK CENTRAL	NEILSTON	WOODHALL
CATHCART	GREENOCK WEST	NEW CUMNOCK	YOKER
CHARING CROSS (GLASGOW)	HAIRMYRES	NEWTON (LANARKSHIRE)	
CHATELHERAULT	HAMILTON CENTRAL	NEWTON-ON-AYR	
CLARKSTON	HAMILTON WEST	NITSHILL	
CLELAND	HARTWOOD	PAISLEY CANAL	

Stations in area: South Yorkshire PTE

Journeys that start and end at one of these stations:

ADWICK
BARNSLEY
BENTLEY (YORKSHIRE)
BOLTON-ON-DEARNE
CHAPELTOWN
CONISBROUGH
DARNALL
DARTON
DODWORTH
DONCASTER
DORE
ELSECAR
HATFIELD AND STAINFORTH
KIRK SANDALL
KIVETON BRIDGE
KIVETON PARK
MEADOWHALL
MEXBOROUGH
PENISTONE
ROTHERHAM CENTRAL
SHEFFIELD
SILKSTONE COMMON
SWINTON (YORKSHIRE)
THORNE NORTH
THORNE SOUTH
THURNSCOE
WOMBWELL
WOODHOUSE

Stations in area: West Yorkshire PTE

Journeys that start and end at one of these stations:

APPERLEY BRIDGE	KNOTTINGLEY
BAILDON	LEEDS
BATLEY	LOW MOOR (LMR)
BEN RHYDDING	LOCKWOOD
BERRY BROW	MARSDEN
BINGLEY	MENSTON
BRADFORD FORSTER SQUARE	MICKLEFIELD
BRADFORD INTERCHANGE	MIRFIELD
BRAMLEY (YORKSHIRE)	MOORTHORPE
BROCKHOLES	MORLEY
BURLEY PARK	MYTHOLMROYD
BURLEY-IN-WHARFEDALE	NEW PUDSEY
CASTLEFORD	NORMANTON
COTTINGLEY	OUTWOOD
CROSS GATES	PONTEFRACT BAGHILL
CROSSFLATTS	PONTEFRACT MONKHILL
DEIGHTON	PONTEFRACT TANSHELF
DENBY DALE	RAVENSTHORPE
DEWSBURY	SALTAIRE
EAST GARFORTH	SANDAL AND AGBRIGG
FEATHERSTONE	SHEPLEY
FITZWILLIAM	SHIPLEY
FRIZINGHALL	SLAITHWAITE
GARFORTH	SOUTH ELMSALL
GUISELEY	SOWERBY BRIDGE
HALIFAX	STEETON AND SILSDEN
HEADINGLEY	STOCKSMOOR
HEBDEN BRIDGE	STREETHOUSE
HONLEY	TODMORDEN
HORSFORTH	WAKEFIELD KIRKGATE
HUDDERSFIELD	WAKEFIELD WESTGATE
ILKLEY	WALSDEN
KEIGHLEY	WOODLESFORD
KIRKSTALL FORGE (KLF)	

Stations in area: West Midlands PTE

Journeys that start and end at one of these stations:

ACOCKS GREEN	GREAT MALVERN	SMETHWICK GALTON BRIDGE
ADDERLEY PARK	HAGLEY	SMETHWICK ROLFE STREET
ALBRIGHTON	HALL GREEN	SOLIHULL
ALSAGER	HAMPTON-IN-ARDEN	SPRING ROAD
ALVECHURCH	HAMSTEAD (BIRMINGHAM)	STAFFORD
ASTON	HARTLEBURY	STECHFORD
ATHERSTONE	HATTON	STOKE-ON-TRENT
BARLASTON	HEDNESFORD	STONE
BARNT GREEN	HENLEY-IN-ARDEN	STOURBRIDGE JUNCTION
BEARLEY	HEREFORD	STOURBRIDGE TOWN
BEDWORTH	JEWELLERY QUARTER	STRATFORD-UPON-AVON
BERKSWELL	KENILWORTH	STRATFORD-UPON-AVON PARKWAY
BERMUDA PARK	KIDDERMINSTER	SUTTON COLDFIELD
BESCOT STADIUM	KIDSGROVE	TAME BRIDGE PARKWAY
BILBROOK	KINGS NORTON	TAMWORTH
BIRMINGHAM INTERNATIONAL	LANDYWOOD	TELFORD CENTRAL
BIRMINGHAM MOOR STREET	LANGLEY GREEN	THE HAWTHORNS
BIRMINGHAM NEW STREET	LAPWORTH	THE LAKES
BIRMINGHAM SNOW HILL	LEA HALL	TILE HILL
BLAKE STREET	LEAMINGTON SPA	TIPTON
BLAKEDOWN	LEDBURY	TYSELEY
BLOXWICH	LICHFIELD CITY	UNIVERSITY (BIRMINGHAM)
BLOXWICH NORTH	LICHFIELD TRENT VALLEY	WALSALL
BORDESLEY	LONG BUCKBY	WARWICK
BOURNVILLE	LONGBRIDGE	WARWICK PARKWAY
BROMSGROVE	LYE	WATER ORTON
BUTLERS LANE	MALVERN LINK	WEDGWOOD
CANLEY	MARSTON GREEN	WELLINGTON (SHROPSHIRE)
CANNOCK	NORTHAMPTON	WHITLOCKS END
CHESTER ROAD	NORTHFIELD	WIDNEY MANOR
CLAVERDON	NORTON BRIDGE	WILMCOTE
CODSALL	NUNEATON	WILNECOTE
COLESHILL PARKWAY	OAKENGATES	WITTON
COLWALL	OLD HILL	WOLVERHAMPTON
COSELEY	OLTON	WOOD END
COSFORD	PENKRIDGE	WOOTTON WAWEN
COVENTRY	PERRY BARR	WORCESTER FOREGATE STREET
COVENTRY ARENA	POLESWORTH	WORCESTER SHRUB HILL
CRADLEY HEATH	REDDITCH	WYLDE GREEN
CREWE	ROWLEY REGIS	WYTHALL
DANZEY	RUGBY	YARDLEY WOOD

DORRIDGE	RUGELEY TOWN	
DROITWICH SPA	RUGELEY TRENT VALLEY	
DUDDESTON	SANDWELL AND DUDLEY	
DUDLEY PORT	SELLY OAK	
EARLSWOOD (WEST MIDLANDS)	SHENSTONE	
ERDINGTON	SHIFNAL	
FIVE WAYS	SHIRLEY	
FOUR OAKS	SHREWSBURY	
GRAVELLY HILL	SMALL HEATH	

12.4 Appendix D: Weighting regime: main survey – Wave 42

TOC	total	COMMUTER	BUSINESS	LEISURE	WEEKDAY	WEEKEND
Avanti West Coast	38,285,113	9	22	69	80	20
c2c	46,742,558	67	6	27	86	14
Chiltern Railways	25,376,380	38	25	37	82	18
CrossCountry	38,828,887	15	28	57	78	22
East Midlands	26,433,181	23	28	49	82	18
Gatwick Express	11,679,979	15	44	40	77	23
Grand Central	1,389,033	5	28	67	71	29
Great Northern	43,247,405	53	10	37	85	15
Great Western	113,195,99	28	20	52	71	29
Greater Anglia	86,049,276	44	25	31	86	14
Heathrow Express	6,387,707	2	49	49	78	22
Hull Trains	2,074,218	10	45	45	70	30
London North	21,800,011	9	31	60	74	26
London	187,799,58	61	3	37	80	20
Merseyrail	43,827,966	43	1	56	80	20
Northern	103,627,07	38	9	53	76	24
ScotRail	95,875,611	39	13	47	80	20
South Western	216,669,63	53	15	32	85	15
Southeastern	163,597,14	48	21	31	86	14
Southern	164,028,44	52	9	39	86	14
TfL Rail	55,973,400	61	4	35	81	19
Thameslink	170,651,92	53	10	37	85	15
TransPennine	29,519,831	26	13	61	82	18
Transport for	36,124,864	31	10	59	81	19
West Midlands	76,175,589	40	13	46	85	15

12.5 Appendix E: Journey Purpose Definition

Detailed description	Journey Purpose
Daily commuting to/from work/college/school	Commuter
Less regular commuting to/from work/college/school	
On company business (or own if self employed).....	Business
On personal business (job interview, dentist etc).....	Leisure
Visiting friends or relatives.....	
Shopping trip.....	
Travel to/from holiday	
A day out.....	
Sport	
Other leisure	

12.6 Appendix F: Building block genre definitions

HIGH SPEED	SHORT COMMUTE
Great Western Railway - Long Distance	Transport for Wales - Cardiff & Valleys
Southeastern - High-Speed	Transport for Wales - South Wales & Borders / West Wales
Virgin Trains - London - Liverpool	c2c - Southend Line
Virgin Trains - London - Manchester	c2c - Tilbury Line
Virgin Trains - London - North Wales	Chiltern Railways - Metro
Virgin Trains - London - Scotland	East Midlands Railway - Local
Virgin Trains - London - Wolverhampton	West Midlands Trains (formerly London Midland)- West Midlands
LNER - London-Leeds and West Yorkshire	London Overground - Highbury & Islington - Croydon
LNER - London-Newcastle/Sunderland and East Yorkshire	London Overground - Richmond/Clapham Junction - Stratford
	London Overground - Watford - Euston
LONG DISTANCE	London Overground - West Anglia
CrossCountry - North-South Manchester	Merseyrail - Northern
CrossCountry - North-South Scotland & NE	Merseyrail - Wirral
East Midlands Railway - Liverpool - Norwich	Northern - Central
Grand Central - London - Bradford	Northern - North East
Grand Central - London - Sunderland	Northern - West
Hull Trains	ScotRail - Strathclyde
TransPennine Express - North	South Western Railway - Metro
Virgin Trains - Birmingham - Scotland	Southeastern - Metro
LNER - London-Scotland	Southern - Metro
	TfL Rail - East
	Thameslink - Kent
	Thameslink - Loop

INTERURBAN	LONG COMMUTE
Transport for Wales - Inter Urban	Chiltern Railways - Commuter
CrossCountry - East-West	Chiltern Railways - Oxford
Greater Anglia - Intercity	Chiltern Railways - West Midlands
West Midlands Trains (formerly London Midland) - West Coast	East Midlands Railway - London
Northern – East	Great Northern
ScotRail – Interurban	Great Western Railway - London Thames Valley
South Western Railway - Longer Distance	Greater Anglia - Mainline
TransPennine Express - North west	West Midlands Trains (formerly London Midland) - London Commuter
TransPennine Express - South	ScotRail - Urban
	South Western Railway - Outer Suburban & Local
	Southeastern - Mainline

	Southern - Sussex Coast
	Thameslink - North / South

RURAL	**AIRPORT**
Greater Anglia – Rural	Greater Anglia - Stansted Express
Transport for Wales - Mid Wales & Borders	Gatwick Express
Transport for Wales - North Wales & Borders	Tfl Rail - West
Great Western Railway – West	Heathrow Express
ScotRail – Rural	
South Western Railway - Island Line	

12.7 Appendix G: Methodology for calculating passenger volumes by TOC and station

The following is a description of how ORR data is used to calculate passenger volumes for each TOC at each station in the national rail network.

Step 1

Passenger journey data for each station is taken from the ORR database. This database uses ticket sales data from LENNON supplemented with journey data from a number of other sources that LENNON does not include, principally:

- Journey data from TfL for London Underground stations that offer national rail services;
- PTE journeys from sales that are made from sources other than national rail stations.

The data used is number of entries plus number of interchanges. For example, the total annual passenger journeys estimated from London Victoria in 2016 was 43,679,122 (37,944,698 entries and 5,734,424 interchanges).

Step 2

This data is then aggregated for all stations across the rail network and compared to the total obtained by aggregating data for all TOCs as supplied by DfT. In 2016, the station aggregation total was 1,709,795,666, whereas the DfT TOC total was 1,681,723,037.

Step 3

Data from the electronic timetable is used to count how many services each TOC runs from a station in the four weeks in February each year. This is then profiled, so that we estimate what percentage of the services run from a station are by each TOC. At London Victoria, the % breakdown of services run from the station in 2016 was as follows:

Southeastern	32.02 %
Gatwick Express	10.25%
Southern	57.53 %
Thameslink	0.19 %

Step 4

These profiles are then applied to the total passenger count for the station derived in step 1. Implicitly, the assumption is that the proportion of journeys by TOC from the station is the same as the proportion of number of services by TOC from the station. For London Victoria, this results in estimated passenger volumes as follows:

Southeastern	13,987,534
Gatwick Express	4,478,705
Southern	25,129,026
Thameslink	83,857

Step 5

The total estimated passenger journeys for each TOC is computed by adding up the estimate for each station at which the TOC calls. For Southeastern, this gives a total of 181,896,188 compared to the TOC total of 176,243,140. This produces a TOC scaling factor for Southeastern of 0.96892167. A similar process for Gatwick Express ,Southern and Thameslink produces factors of 0.83551305 , 1.07503792 and 0.88523141 respectively.

Step 6

These factors are then applied, TOC by TOC, to the estimated passenger journeys for each station at which the TOC calls. This gives an updated estimated passenger journeys for the TOC for each station. So at London Victoria, the updated figures are as follows:

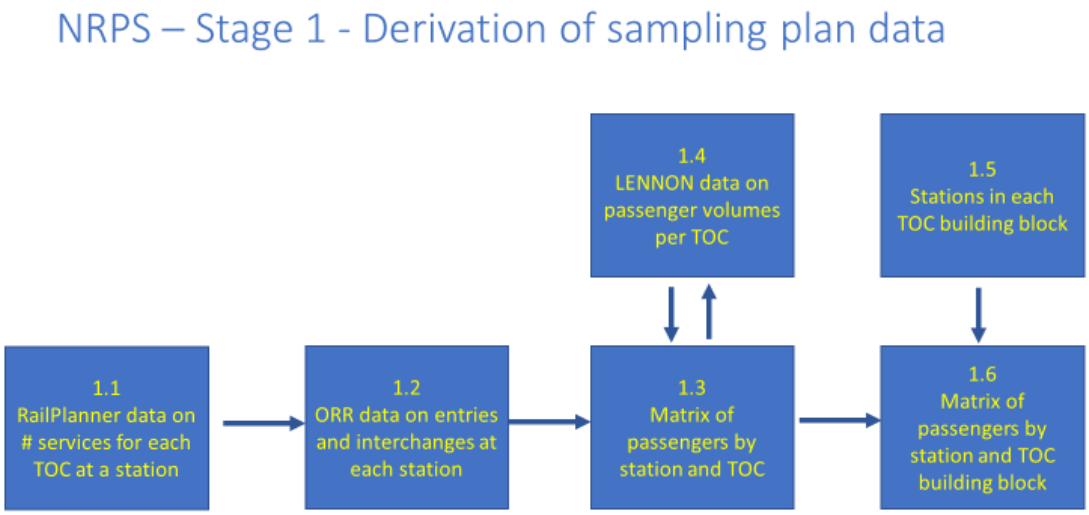
Southeastern	13,552,824 (13,987,534 times 0.96892167)
Gatwick Express	3,742,016 (4,478,733 times 0.72579627)
Southern	27,014,656 (25,129,026 times 1.07503792)
Thameslink	74,232 (83,857 times 0.88523141)

A revised estimate for London Victoria is then calculated by adding up these totals - 44,383,728 compared to the original station total of 43,679,122. A station scaling factor for London Victoria is now produced - 0.984124660.

Steps 5 and 6 are then repeated until the process converges in that station factors remain as they were from the previous iteration (TOC totals are preserved in the final run as these are regarded as sacrosanct).

At the end of this process we have a set of estimated passenger journeys for each TOC at each station that adds to the TOC totals and adds as closely as possible to the station totals.

The diagram below summarises how this process works including the extension to deriving passenger volume estimates per station at building block level.



12.8 Appendix H – Quality Assurance Checklist

Stage	section	item	Quality Assurance Check	Progress	Comment
NRPS - Stage 1 - Derivation of sampling plan data	1.1	1	How does the Rail Planner data compare with the same data from the previous occasion on which this exercise was undertaken?	No action required	
	1.1	2	Are there stations where the TOC split has changed a lot?	No action required	
	1.1	3	Are there TOCs where the station split has changed a lot?	No action required	
	1.1	4	If so, is there supporting evidence to substantiate these changes?	No action required	
	1.1	5	Confirm that four weeks in February was used to create the data?	No action required	
	1.2	1	How does the ORR data compare with the same data from the previous occasion?	No action required	
	1.2	2	Steer, the contractor that produces the ORR data already provides extensive documentation on any significant changes in passenger volumes so comment on any significant changes shown in their report].?	No action required	
	1.2	3	Confirm the passenger volumes were created by adding entries to interchanges, to form the estimate of passengers boarding at each station?	No action required	
	1.3	1	How does the final matrix of passenger volumes by station and TOC compare with the same data from the previous occasion?	No action required	
	1.3	2	Highlight any significant changes and provide comment on why these may have occurred?	No action required	
	1.4	1	How does the LENNON data compare with the same data from the previous occasion?	No action required	
	1.4	2	Is there any evidence to support significant increases or decreases?	No action required	
	1.5	1	How does the list of stations in each building block compare to the same data from the previous occasion?	No action required	
	1.5	2	Provide proof of changes signed off by TOCs (e.g. new stations, changes to route structure)?	No action required	
	1.6	1	How do the passenger numbers for each TOC building block compare with the same data from the previous occasion?	No action required	

	1.6	2	Provide proof of changes signed off by TOCs (e.g. growth in a particular route due to increased service frequency). As necessary, amend figures if TOCs provide clear evidence that their alternative is correct and note this?	No action required
NRPS - Stage 2 - Creation of sampling plan	2.1	1	Confirm the allocation of each station in a TOC building block to a station size band – very large, large, medium and small – and store the percentage of total passengers each of the four size bands contributes?	No action required
	2.2	1	How does the sampling plan (number of shifts per station across all TOC building blocks) compare with previous wave?	No action required
	2.2	2	Are there any large increases or decreases?	No action required
	2.2	3	If so, provide evidence on why this might be the case (new route introduced, redevelopment of station, relatively new station where numbers are still increasing etc)?	No action required
	2.3	1	If number of shifts has decreased, confirm which shifts have been removed?	No action required
	2.4	1	If number of shifts has been increased, confirm the new shifts and specify how days of week and time of day were allocated for each	No action required
	2.4	2	Confirm TOC data for weekday/weekend split and journey purpose split has been signed off by TOC?	No action required
NRPS - Stage 3 - Monitoring fieldwork activity	3.1	1	Has the questionnaire had formal sign off from Transport Focus?	Completed
	3.1	2	Has the online version been updated and tested?	Completed
	3.2	1	Has the prediction model been initially updated with the details of the new sampling plan?	Completed
	3.3	1	Have the TOC and TOC building block targets been signed off by TOCS?	Completed
	3.4	1	At regular intervals, have the estimated numbers been replaced with actual returns?	Completed

	3.4	2	If returns are particularly low for individual shifts have these been investigated (e.g. are shifts from a particular interviewer lower than expected, are returns from a particular station lower than expected and why)?	Some content	To be investigated
	3.5	1	Where there is a surplus, which shifts have been cancelled and why have those shifts been chosen?	No action required	
	3.6	1	Have the TOC profiles by journey purpose and weekday/weekend been confirmed?	No action required	Repeat of 2.4 item 2
	3.7	1	Where there is a deficit, which shifts have been added and why have those shifts been chosen?	No action required	
NRPS - Stage 4- Validating survey data	4.1	1	Have the key fields been completed by the respondent (time of journey, TOC used, destination station etc)?	Completed	
	4.1	2	If so, does the journey specified exist on the rail timetable for the day of the journey?	Completed	
	4.2	1	Have the definitions of which stations comprise each TOC building block been updated and signed off by the TOC?	Completed	
	4.3	1	Have the computer rules for automatic assignment of a journey to a TOC building block been updated to reflect any such changes?	Completed	
	4.3	2	Have manual assignments been signed off by Transport Focus?	Completed	
	4.4	1	Are the station size band weights for each TOC building block similar to the previous wave?	Completed	
	4.4	2	If not, is there an explanation for this (e.g. amendment to the sampling plan to correct previous under or over representation)?	Completed	Early curtailment of fieldwork
	4.5	1	Have the TOCs updated and signed off total passenger volume numbers and profiles by weekday/weekend and journey purpose?	No action required	Repeat of 2.4 item 2
	4.5	2	Have any changed markedly from the previous wave and if so, has this been challenged and then agreed?	No action required	
	4.6	1	Are any of the final weights outside the range 0.5 to 2 (provide % in "provide details""?	Completed	Large % outside this range that will be investigated
	4.6	2	Do these cluster in specific TOCs or TOC building blocks?	Completed	Some TOCs to be investigated

NRPS - Stage 5 - checks on data outputs	5.1	1	Do the weighted totals in the data tables match the input targets for each TOC by weekday/weekend, journey purpose and station size band within each TOC building block?	Completed	
	5.2	1	Is the weighting efficiency different from previous waves?	Completed	Lower due to early curtailment of fieldwork
	5.2	2	Are there particular TOCs with below average weighting efficiency?	Completed	Details provided in report
	5.2	3	If so, what is the cause of this – is it failure to meet day of week, journey purpose or TOC building block targets?	Completed	Early curtailment of fieldwork
	5.3	1	Is the key driver analysis consistent to the previous waves?	Completed	Some TOCS have differences due to curtailment of fieldwork
	5.3	2	Are any shifts in either the factors emerging or the coefficients of factors consistent with expected changes (e.g. during a period of declining punctuality, one might expect punctuality to be a bigger driver of journey satisfaction than before)?	No action required	
	5.4	1	Does the data in the key reports match that in the data tables?	Completed	
	5.5	1	Does the day of week and journey purpose profile for PTE areas match that currently used to create the PTE reports?	Completed	
	5.5	2	Are the current PTE profiles still relevant?	Completed	
	5.5	3	Are the definitions of PTE areas the same as in the previous wave (e.g. are there any new stations or station closures)?	Completed	
	5.6	1	How do the Network Rail managed stations targets vary from those used previously?	No action required	
	5.7	1	Have the specific rules and processes used this wave been updated in the Technical Report and the User Guidance Report?	Completed	
	5.8	1	Have recommendations been made for updating the sampling plan next wave been recorded and discussed with Transport Focus (e.g. switching some shifts from weekday to weekend for a TOC to reduce day of the week weighting next time)?	Some content	To be determined